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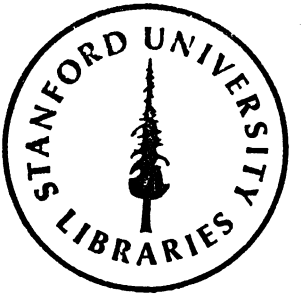
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Harry Kobialka

Yours sincerely
Paul Stoeving

THE MASTERY OF THE BOW
AND
BOWING SUBTLETIES

A TEXT BOOK
FOR
TEACHERS AND STUDENTS OF THE VIOLIN

BY

PAUL STOEVING
Author of "The Art of Violin Bowing," "The Story of the Violin," and "The Elements of Violin Playing and a Key to Sevcik's Works," etc.

SUPPLEMENTED BY
"RIGHT ARM GYMNASTICS"
A VOLUME OF SELECTED AND ANNOTATED BOWING STYLES
FOR
DAILY STUDY

(*Published Separately*)

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To My Friends,

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THE MASTERY OF THE BOW

CHAPTER I

The right grip of the bow — what constitutes it — how to secure it — the thumb — its function and position — the middle finger — the ring finger — the little finger and the index finger — résumé — exercises for gripping the bow and loosening the finger joints.

The right grip of the bow

Perhaps the most important thing in the all important correct beginning of violin study is the right grip of the bow. I say purposely the right grip, for a student may faithfully observe the book rules, general and specific, for holding the bow and yet not succeed in securing the right grip. Here already individuality shows itself. Not only are hands differently shaped, weak and strong, long and short, slender and bony, broad and fleshy, but the manner of taking hold of the bow whether according to strict rules or not, the very feeling of the hand for it varies with individuals and comes under the head of the right grip of the bow.

What Constitutes Such a Grip and What is Implied by It?

What constitutes it

The hand while presenting an all rounded, graceful, shell-like appearance should first: — hold the bow securely but not tightly; second: — it should balance its top heavy tip and yet not feel that it is balancing anything or in other words,

feel any strain on any particular finger or part of the hand; third: — all finger joints should be flexible so that each finger, although the hand functions as a *whole*, may be able not only to move on the stick, yield in its joints, bend and stretch, but permit being individually sensitized for some particular purpose and through such independence and obedience to mind impulses help to attain for the whole hand that utmost sensitiveness and delicacy of touch which is inseparable from a true mastery of the bow.

What, for Instance, Is the Consequence of too Tight a Grip?

The consequence of too tight a grip

It creates a state of rigidity of the hand where flexibility of the finger joints is impossible and by straining also the muscles of the forearm paralyses the functioning of the whole arm.

Too loose a grip

On the other hand holding the bow very loosely not only jeopardizes the security of the grip in rapid sudden changes of bowing styles and encourages a flabby colorless style, but as it keeps the muscular apparatus of the hand in an over-relaxed condition every effort at energizing the muscles and stimulating them to increased activity has to be proportionately greater to secure the desired results.

But Why Attach Such Supreme Importance to the Right Grip of the Bow?

The importance of a right grip

In the first place it is the hand which being in direct contact with the stick forms the first medium through which the brain and heart of the player convey their messages. As such

it must be in the best possible condition to receive and express these messages, even the most subtle and transient ones, it must resemble a finely attuned and adjusted instrument, as it were, on which the mind can play at will. Secondly, based on the foregoing presumption the need for flexibility of all the finger joints becomes apparent when we come to consider the function of the hand in the process of drawing the bow and tone production, etc.

Why flexibility of the finger joints

It is largely by this flexibility, unconscious and conscious, that the player is enabled — (*a*) to keep the bow at a right angle with the strings under all circumstances; (*b*) to preserve a perfectly even tone quality if he so desires, or produce dynamic variations in the stroke; (*c*) to attain to a delicate, inaudible change of bow at every part of the stick and (*d*) to perform an indefinite variety of bowing styles especially those which are seemingly executed from the hand with a loose wrist but which in reality depend for their lightness and neatness in no small degree on the accommodating flexibility of the finger joints.

Thirdly, the right grip of the bow including all the conditions enumerated above, is necessary for the right and successful operation of the laws of muscular relaxation on which a systematic development of the bow arm so much depends. Of this I shall have occasion to speak later.

How to Secure Such a Perfect Grip of the Bow?

How to secure a right grip

I should preface here that nature does not endow every hand with equal liberality or with a view to further violinistic accomplishments. A broad, fleshy, soft and yet strong hand

with fairly long fingers is undoubtedly best suited for the violin.

Such a hand, to begin with, finds that the difficulty so great for the slender and weak one, of balancing the top heavy stick, is as nearly eliminated as it can be, besides more easily satisfying the æsthetic demands made upon it for a well-rounded, graceful appearance.

Taking, however, a less favored average hand, the first step in the direction of securing a right grip of the bow and of *first consideration* is the *position* and *function* of the *thumb*.

The thumb

The natural attitude of this finger with respect to the other fingers is that of a servant. They are one and all helpless without it, and yet it is subservient to each. In wishing to take hold of any object, light or heavy, the mind may select the fore-finger or ring finger or all the four fingers together, it is with the silent, unconscious understanding that the ever-

Its function

ready, strong, accommodating thumb lends its assistance. To be accommodating is its self-evident attitude and function. So perfectly organized, so finely tempered is this superb servant that it responds to a nicety to every physical demand made upon it, whether it is meant to clutch a club with a grip of iron or hold the wing of a butterfly.

In violin playing its function is generally speaking not in any way different. It is also to respond to every call made upon it, light or strong, transient or sustained. The question is, how may it be best fitted for its manifold duties, or what is its best attitude with regard to the stick and the other fingers.

It is surprising that the thumb in particular should

receive so little, and in view of its importance quite inadequate, attention on the part of teachers and in the known violin methods. The pupil is usually told to hold the thumb "acutely bent" and perhaps he is warned against stiffening it, but otherwise he is left in profound darkness respecting its position and function, and the result is, in many cases, an almost incurable stiffness not only of this finger but of the whole bow arm.

What is the position (form) of the thumb in holding any light object, say a lead pencil?

FIG. 1. Correct natural bend of thumb.

Its first joint (from the tip) is slightly, very slightly, bent; as a rule we only stiffen this joint more acutely so that it possibly protrudes when weight or pressure becomes intense, although even then an acute bending of the first joint is by no means necessary or an appreciable gain in strength. Contrary to this daily experience we find, as I said, pupils holding their bow with the thumb joint acutely bent and in most instances stiffened, because more or less stiffness goes naturally with such an acute angle.

Consequence of a stiffened thumb joint

Apart from the fact that a violin bow weighs barely two ounces and if properly balanced in the hand does not for the ordinary purposes of a beginner require any special applica-

FIG. 2. Incorrect acute bend of thumb.

FIG. 3. Incorrect inward bend of first joint.

tion of physical force, what is the consequence of the thumb joint acutely bent and stiff? Even admitting that it may work when playing at the nut and down to the bow middle, beyond the middle and all the way to

the point, the joint has either to stretch itself out or, unless the arm is of extraordinary length, the elbow must protrude against all sane rules, and the wrist is forced into an awkward twist. There is no other alternative. In addition real delicacy of touch with every part of the bow is next to impossible, for the stiffness in the thumb does not remain local but imparts itself to the hand, wrist and forearm.

If, on the other hand, the joint were kept loose and for the above reason made to bend and stretch itself alternately with every up- and down-stroke which may be at the rate of one per second, it needs no comment to show the impracticability, to say the least, of such joint-alacrity.

The force acted upon

The difficulty disappears at once when the joint is kept slightly (naturally) bent and supple as in illustration No. I. The same easy bend may then be retained through the whole extent of the stroke, that is, for every portion of the bow employed and for every dynamic exigency. I should emphasize here, in reiteration of some of my previous remarks, that the thumb in its relation to the stick represents *not* the *initiative* but the *coöperative* respectively *resisting* force, not the hammer, but as the thumb of the left hand in respect to the fingers of that hand, the anvil, in other words, the force which is acted upon. It answers, *i.e.*, presses in exact proportion to the pressure or non-pressure brought on the stick by the rest of the hand or part of it, the forefinger in particular. (See below.) This, it might be called waiting, expectant attitude of the thumb is expressed by the slight natural bend of its first joint.

Its position with respect to the stick

The next question that arises is that of the exact position of the thumb with respect to the stick. Here two points demand consideration firstly: the thumb must be so placed that it rests securely under all conditions against slipping off the stick or through the nut and secondly: so, that its position, *i.e.*, angle to the stick, together with the bend of its joint undergoes no appreciable alteration during the act of drawing the bow whether the strokes be light or strong, slow or fast, for it is obvious that any such re-occurring change, however slight, must have a more or less damaging effect on the nature and quality of the stroke.

The need for security

The need for security is best met by setting the tip of the thumb so that it rests partly against the little ebony elevation of the nut, partly (somewhat more) on the stick itself, and is turned a little sideways, *i.e.*, with the thumb nail not running quite parallel with the bow hair. The extreme end of the tip is not recommended as the player in order to get a good grip on the bow is apt to use force and allow the first joint to stiffen. At the same time since sensitiveness of touch is greatest at the point of the finger tip and there is danger of pushing the thumb too far through the nut (a mistake to be carefully avoided), one should use the right side of the tip as near the thumb nail as is compatible with safety and comfort. The nail should not be cut too short.

For comparative unchangeability

As for the comparative unchangeability of the position of the thumb through the whole bow length, this is attained by setting it at an angle of about 65° to the stick, not at a right angle. It may easily be seen that, except for almost imperceptible

tible modifications, the former angle can be retained whether one plays at the nut or point of the bow, while in the contrary case (standing at a right angle) the thumb would have to alter its right angle for a smaller one every time the bow is engaged anywhere near the point; this, in drawing the bow, would mean a kind of perpetual see-saw movement of the thumb on the stick. And as the thumb must necessarily lie very loose to permit this, it is evident how unstable and out of control the bow is likely to become for rapid motions. The disadvantage indeed does not end here. The continuous changing of the position of the thumb directly affects that of the wrist and hand and especially the forefinger; with the thumb standing at a right angle, the player, in order to reach the nut would be almost sure to drop the wrist; this has the effect of not only drawing the thumb still further back (that its angle becomes one of 90°) but also of pulling the forefinger (see below) away from its place on the stick and the little finger further over and joining in the see-saw movement with every change of the bow at the nut. As a rule this change at the nut in consequence becomes audible and jerky (compare Chapter IV and V).

Effecting the position of the wrist

I may mention in this connection that the position of the thumb and forefinger in relation to the bow forms one of the main points of difference between the older German (Spohr) School and the Italo-Viotti and modern Franco-Belgian School of violin playing; the former advocating the changing angle of the thumb with its results on the hand, wrist and forefinger, the latter the comparative stable angle and greater use of the forearm for manipulating the bow.

The middle finger

Opposite the right half of the tip of the thumb, not quite meeting it, lies the middle finger with its first joint indenture on the stick. The thumb therefore divides the hand into all but even halves, maintaining an equilibrium between the strong fore-

FIG. 4. Thumb placed at the correct angle, opposite to the middle finger with the forefinger and ringfinger slightly suspended over their places.

finger and the weaker ring and little fingers. Scientific observation and investigations by Dr. Steinhausen with

Its position and foremost duty

regard to the physiology of the right arm in violin playing have shown that the correct drawing movement of the bow is only possible through a rotation of the forearm in the elbow joint in which the hand participates, the middle finger and thumb forming the axis of the rotary hand and forearm movement. For every down stroke the forearm and forefinger side of the hand perform a motion which Dr. Steinhausen terms pronation, for every upstroke, what he

calls supination. This axis represented by the thumb and middle finger according to Dr. Steinhausen stands perpendicularly to the stick and the slight displacements it is necessarily subjected to by drawing the bow its full length are affected by an elastic yielding of the two fingers, the thumb through the fleshy pad of its tip, the middle finger in its first joint through the elastic skin and fatty tissues covering the joint.

Pronation and supination

The foremost duty of the middle finger is to hold the bow in conjunction with the thumb, while in the actual work of drawing the bow it may be said to be only passively engaged by reason of its comparative immutability as part axis of the stroke movement.

The ring finger

The ring finger in following the slight bend of its longer neighbor and lying comfortably close to it, is placed on the stick between its tip and first joint, or preferably, in most cases lays itself a little around the stick with its tip. It represents with or without the help of the little finger the pushing element — the supinatory movement of the hand and thus the counterpart to the forefinger, carrying, generally speaking, the upstroke impulse into effect. I say, generally speaking for, as a matter of course, the machinery at work in bowing is so complex and varied that what is valid in some instances seems to be contradicted by experience in others.

Carrying the upstroke impulse into effect

Other duties

On account of its position with respect to the "Spiel achse" and its lighter, more sensitive touch as compared to the middle finger, the ring finger is largely instrumental in the execution of many

bowing styles in which the heavier middle finger plays only a mere accessory or passive part, for instance; the firm staccato, many of the springing bow arpeggios, flying staccato, sautillé, etc.

In connection with the little finger it is also chiefly engaged in numerous forms of slurring several strings, helps to alleviate the bow weight near the nut and adds to it where necessary, and effects many dynamic subtleties and minor accents, etc., otherwise the dominion of the forefinger. (See below.) In many instances it acts as a discreet moderator and auxiliary to the activity of the forefinger.

The little finger

The little finger, which should rest on the stick only lightly with the end of its tip, may be said to be the assistant of the ring finger, the outer feeler of the hand, as it were, in its supination for the upstroke, starting and completing it. Its touch being in most instances still lighter than that of its neighbor, it acts on the one hand in the capacity of a pilot in the transition of the bow over the strings, on the other as an additional moderator to the pronatory attitude of the forefinger (see next page), balancing the top heavy stick and alleviating its weight near the nut. It is the main factor in effecting the smooth change of bow, that is, the change from supination to pronation of the hand.

The outer feeler of the hand and pilot

Its activity is more needed and therefore more in evidence when the lower half of the bow is employed; in the opposite case (nearer the point) it is not seldom allowed to slip off, or is purposely raised from the stick, be it for the sake of gaining greater freedom of the wrist for delicate shades of detached bowings and slurs or

because the arm is short, or, also, in order to facilitate the execution of certain bowing styles like staccato, à ricochet, sautillé, etc., where its moderating, balancing influence would be felt as a handicap.

I may mention here, that with the experienced player, even raising the middle finger at certain times in no way need impair the efficiency of the bowing hand, for although the middle finger constitutes part of the axis of the rotatory motion of the hand, the movement itself does not depend on it but is carried on through the inside of the other fingers.

With respect to the little finger, as well as the middle finger, it is understood that it should be ever near and ready to reassume its place and function on the bow stick, and even when temporarily raised by hanging loosely (not stiffly) beside the ring finger its weight however negligible may be advantageously utilized.

The forefinger

In the forefinger finally, we have, if there is to be given a predominance to any of the four fingers, the *primus inter pares*. It is the real tone producer and the secret lever in the execution of countless bowing styles. Already the early Italian violin masters recognized its supremacy as a medium for tone production and tone shading as we can see in Geminiani's "Violin Method," the first "Method" published. And here its use by no means ends. It may rightly be called the index of the soul of the player, for it impresses on the responsive stick every dynamic comma, every shade of expression.

The real tone producer

In opposition to the ring finger which I said represented the upstroke principle, supination of the hand, the fore-

finger is the moving force behind the down stroke, pronation. In view of the unlimited functionings of this finger its right position on the stick is of the utmost importance. In many cases of bad bowing, hopeless impotency, the fault will be found to lie, if not with the thumb, with the position of the forefinger. There is no exception to the rule that it should lie on the bow between its first and second

Its position on the stick

FIG. 5. All the fingers down; front view.

joint from the tip, never in the first or, (worse), the second indenture; but as with all the other fingers, it must be given a certain latitude for moving within these two indentures; in other words, it should be allowed to approach the second joint when nearing the point of the stick and recede slightly (according to the physical structure of the hand, wrist and arm) in the opposite direction, that is, towards the first joint when playing at the nut.

It should lay itself well around the stick, cling to, hug the bow through the whole length of the stroke. It seldom relaxes its hold altogether whether its contact is slight or firm, but, as it were, feels and regulates the pulse beat of the bow in every stroke and strokelet. By lying on the stick between the first and second joint indentures the finger has just the necessary strength and withal delicacy of touch for its manifold activities.

Feels and regulates the pulse beat of the bow

FIG. 6. Incorrect position of the hand (forefinger lies on the stick between the large knuckle and first joint).

The older German method of allowing the forefinger to move backwards and forwards see-saw fashion with every stroke to and from the nut while the wrist was held low, has been almost universally discarded; violinists, following the lead of Viotti and the Franco Belgian School, have returned to the bowing principles of the old Italian masters.

Résumé To reiterate once more in fewer words the foregoing: — In order to show the position of every finger more distinctly, hold the bow with the left hand (illustration, p. 7), hair turned upward, and place the **thumb,** naturally, not acutely, bent in the first joint, at an angle of 60° to 65°, so that it rests securely against

FIG. 7. Bow reversed, *i.e.*, with hair up and showing the right-hand fingers in the act of gripping it.

slipping and that the nail does not stand exactly parallel with the hair but a little sideways. Its tip rests more broadly on the wood of the stick itself and only with the edge against the ebony elevation for better support; its *pressure* should be *diagonally across* the *centre* of the bow stick, not at a right angle to the bow hair.

Opposite the right half of the thumb lies the **middle finger,** not too much curved and resting on the stick with its first joint indenture.

The **ring finger,** comfortably close to it and similarly curved, lies on the stick between its tip and first joint indenture or preferably lays itself around the stick with the first joint.

The **little finger** following the (individual) bend of these two fingers touches the bow only lightly with the extreme tip.

The **forefinger,** well curved and hugging the bow, rests on it between the first and second joint indentures.

The grip of the hand should be light but secure, relaxed but not too much (lethargic), firm but not stiff, all the finger joints flexible.

Exercises for Gripping the Bow and Loosening the Finger Joints

1. Learn to place the fingers one by one as indicated correctly until the task is easily performed with the eyes closed. Lay bow down and take it up with the right hand alone alternately twelve to twenty-four times, or release and renew the proper position of the fingers on the stick while holding it.

Hold the bow in an upright position, point up, all fingers in place three minutes.

Hold the bow in a perpendicular position, nut up, all fingers in place three minutes.

Hold the bow in a horizontal position, nut up, all fingers in place three minutes.

Lay the tip of the bow, held horizontally, on the left forefinger for support and roll the four fingers, thumb relaxed, in their joints over the stick by alternately bending and stretching them. Do this many times with short rests intervening.

Do this exercise without the bow being supported by the left hand.

Hold the bow with only the thumb and the two middle fingers and roll their finger joints with or without support.

Hold the bow with the other fingers and roll joints.

CHAPTER II

Psycho-physiological conditions underlying the function of the bow arm — nerve impulses — impulse associations — muscular development in general and particular — muscular relaxation — two maxims for study.

Some psycho-physiological facts

Before entering on the technic of bowing it seems advisable to touch shortly on the psycho-physiological facts underlying it.

In bowing four factors may be at work: The upper arm, the forearm, the wrist and the hand or if we wish to eliminate the wrist as an independent factor we might with good reason substitute for it, as fourth factor, the five fingers.

All of these factors may be engaged simultaneously, or one or the other may, to all appearances, be at rest.

Each and all of these factors or members are set into motion by muscles proceeding from a respective base or centre; those for the movement of the upper arm are found in the shoulder principally; those working the forearm are found to have their base in the elbow; those of the hand likewise. Each muscle and group of muscles is connected by nerves with a particular nerve centre in some part of the brain. The brain by means of nerve impulses or nerve messages functions on the nerves, the nerves on the muscles and the latter on one or the other part of the arm actuating it to move and the result is a stroke, an accent or a mere breath of a tone.

From brain to muscles via nerve impulse

Each muscular effort then, however slight, has its origin in the brain, and before it can become translated into a bowing movement and sound has gone through the stated course via nerve impulse, nerve and muscle or group of muscles.

The first difficulty in working the muscular apparatus in bowing consists therefore in giving accurate (precise) nerve impulses, that is, impulses which to a nicety not only summon the right muscle or group of muscles for a particular purpose, but define also the extent (length and strength) of the effort required of them to that purpose. After this the only other difficulty would seem to lie in the greater or lesser inability of the muscles in an untrained state to meet these requirements on the part of the brain impulses. The impulse may be for a loud beautiful tone and owing to some weak muscle the outcome is a pitiful squeak. There are, however, more difficulties in the way.

Nerve associations

Physiological research has established the fact that most of the nerve impulses actuating our muscles have by frequent repetition become mixed, composite, that is, have formed associations with the result, that, instead of energizing one particular desired muscle and unable to do so, the nerves actuate other muscles not directly concerned in the movement to assist it. And to make matters worse, for the most part these undesired (assisting) muscles are contrary to, resisting, or moderating the real movement intended and are usually stronger.

Thus if we want to use the hand alone we are likely to summon the forearm; when we want to use one single finger we allow two or three or maybe the whole hand to

come to the rescue; and when the beginner wishes to do a short stroke from the wrist he employs anything but the wrist, more likely the elbow, forearm and upper arm together. The great difficulty this peculiar psycho-physiological fact puts before the beginner on the violin, needs no comment. One might say that practising means one long struggle with inconvenient nerve associations, a fight to eliminate undesirable forces. According to Von der Hoya, in the case of great "inborn" talent, as it is called, the talent, from the technical point of view, will be found to lie, alongside a favorable physical predisposition, in the faculty of giving dissociated, accurate nerve impulses.

Their result on the muscular activity

The twofold psycho-physiological activity of isolating such impulses from antagonistic, disturbing, hampering nerve associations, of localising and converting them into a defined and graduated muscular energy necessarily precedes any actual physical development of the muscles. The latter indeed to be permanently effectual must be based on the former. That this principle is little understood and followed in the ordinary teaching methods is unfortunately true. Aggravating the bad results from the prevailing inverted order of muscular development is the further fact that such wrong and confused associated nerve impulses with their effect on the muscles, more especially the weaker ones, become by repetition more and more established and finally almost ineradicable; hence the chronic rigidity in this or that part of the arm, the hand, wrist or forearm which is the bane of so many violinists. For the failure to carry out a required task is in most cases not the consequence of weakness and inability of the right

Reason for chronic rigidity

muscles required and at work, but the prepondering strength of unbidden, adverse ones which militate against them and sooner or later paralyze their efforts.

To establish correct nerve associations

It is true, nerve impulses are and must remain to some degree beyond our conscious control. Even with a profound knowledge of the anatomical structure of the arm in an apparatus so complex as that at work in bowing it would be simply impossible to energize at will and at a given moment a number of muscles variously and simultaneously engaged. Nor would this be desirable. But what is highly desirable is to establish correct nerve associations and leave it to them to operate on the right muscles or groups of muscles for a required technical end; and this can be done even in the case of the average student who brings to the task some intelligence and sufficient patience and perseverance. Given these qualities and time, the actual strengthening and training of the muscles is after that a comparatively sure and easy matter.

Amadeo von der Hoya with rare insight ventilated this question some years ago in a remarkable book "Die Grundlagen der Technik des Violinspiels." He advocated in it the schooling of the right arm and left hand by means of a series of ingenious exercises preliminary to the study of the instrument itself. I do not doubt that under so admirable a guide the right kind of beginner would be greatly benefitted, but I fear this method would not find the same favor with the average student who is eager to see results quickly and is none too patient. I am personally no enthusiast on gymnastic exercises as an aid to technic. I have more confidence in slow systematic work intelligently done on the instrument itself from the very

first lesson when the desire to learn welcomes work, and untried patience is ready to make sacrifices.

And in speaking of systematic work intelligently done on the instrument I refer primarily to the application of the principles of muscular *relaxation.*

Muscular relaxation

While until a few years ago muscular relaxation was scarcely heard of, we read now a good deal in musical journals of it but principally in connection with piano playing. For the study of the violin, very few teachers seem to have given it thought and study, much less insist on its being made a foundational feature of instruction and especially of the instruction of bowing.

Occasionally we hear of a well-known pedagogue recommending a relaxed arm but apart from this, at best a problematic injunction, the teachings of muscular relaxation are not much more applied than in the days of Spohr, who in his famous Method followed by numerous similar ones, piled up mixed bowing and finger difficulties at a breath-taking rate. Naïvely the great man admits in his preface that he never taught a beginner and would be glad to receive suggestions for future editions. And yet it is at the beginning where habits good and bad, mental and muscular are formed and where relaxatory methods should be brought into operation. Once a proper action of the muscles is established things seldom go wrong afterwards.

What is muscular relaxation?

"Relaxation[1] may be said to be for the muscles what sleep is for the body. During sleep the body rests, is being nourished and strengthened, and, with children, grows; its wasted tissues

[1] The above is quoted from an article contributed to "The Musician."

are being renewed, the blood replenished and the nerves reënergized. It is the armistice exacted by the soul for its body after the day's Armaggedon, the time for repairs and refits so that the body may be ready for life's battle on the next day.

During relaxation a muscle, which has been exerted beyond its natural capacity or inclination, rests and is nourished and strengthened by a fresh inflow of nerve energy and vitalizing blood. The greater or more violent and unaccustomed the previous effort of the muscle has been the greater the need of such energy and strength-renewing rest, and the more prolonged it should be, just as after an unusual, great exertion of the body the need of sleep is more urgent, and sleep, if undisturbed, more sound and long. And inasmuch as the exertion of a muscle presupposes one of the nerves controlling it, and this, consciously or unconsciously, an exertion of the will controlling them, relaxation in these two centres is, on the face of it, not less necessary than in the ultimates, *i.e.*, the muscles themselves.

Why needed in the beginning of bowing study

Taking the smallest unaccustomed muscular effort of a beginner in violin bowing, such, for instance, as drawing the bow down at the middle to the length of but a few inches: apart from the mental strain of observing the various rules for doing so correctly and perhaps a general physical one from holding the instrument and bow, he probably will scarcely be aware of any muscular effort incumbent on the stroke; yet the need of a short pause after it, with complete relaxation of the muscles is nevertheless most essential. Without it the muscles involved would almost invariably contract more or less, if not already during the

next, surely in the third and still more so the fourth similar stroke, and stiffness would follow.

After a whole bow stroke, owing to the longer sustained nervous and physical exertion required here, and because more and different sets of muscles are simultaneously brought into action, the pause will have need of being proportionately longer before the next and a third stroke of the same description may follow without the risk of muscular contraction and thence ensuing rigidity. Only as the muscles involved in the execution of this kind of stroke, which implies: (1) balancing the stick near the nut by means of certain muscles of the hand, chiefly of the little and the third finger; (2) a drawing forward of the upper arm, *i.e.*, the exertion of the muscles of the shoulder and back of the neck; (3) a partial slow revolving of the forearm in the elbow socket; (4) a gradual bending of the wrist, and yielding in the finger joints all the way through the stroke — only as the muscles I said, become accustomed to the complex efforts demanded of them, physically slight though they be as yet, the pauses may be shortened and finally omitted or better made after several such strokes, when again a pause will become necessary until much facility has been attained.

It is similar with the first efforts of the fingers of the left hand; whether considered strictly nervous and muscular, or mental, *i.e.*, testing the intonation, etc., each exertion should be followed by a corresponding pause with relaxation of the muscles.

Stiffness felt first in the hand

There is one thing to be mentioned: It is the muscles furthest removed from the nerve centres and weakest, that is, those of the hand and fingers, which tire most quickly. In bowing

the contraction and stiffening makes itself first and foremost felt in the muscles of the hand holding the bow; and here again, in certain fingers more than others, while on the other hand the forefinger and thumb, because strongest by nature and through exercise in ordinary day life, are in proportion more inclined to put this surplus strength into force in the wrong manner and in the wrong place with disastrous stiffening results.

The first condition then under which muscular relaxation is alone possible in bowing is, as I have stated before, looseness of the grip of the hand. This must not be confounded with a flabby, lifeless state of the muscles of the fingers holding the bow, but represents a condition similar to that of the body when imply standing erect in opposition to that when collapsing on the one hand or doing some gymnastic exercises on the other.

Muscular neutrality

Inasmuch as any permission to press and any attempt at pressure on the bow on the part of a beginne is invariably followed by his applying the wrong kind of pressure or to be more precise the right and wrong muscles or opposing forces simultaneously which creates a state of tension and rigidity, — holding the bow lightly and thus drawing it without strain or effort across the strings like a light agreeable weight keeps the muscular apparatus of the hand in a state of what I will call *neutrality*, of easy receptivity from which gradually a subtle sense of discrimination, of selection of certain muscles for certain ends can develop itself. Relaxation of the muscles means therefore a return of the muscles after exertion into the normal state of rest in opposition to a sub-normal one of muscular inertia. By keeping the bow arm and hand in

this state (muscular neutrality) the student learns not only to feel at once, but to gauge to a nicety any strain to which he puts the muscles and when, on their reaching a state of contraction, he must apply the safety valve as it were, relaxation. I think that one reason why children, if well taught succeed so much better in learning the violin than grown-ups is, that not alone are their hands more flexible and able, so to say, to grow to the instrument, but that their muscles, because weak are continually subjected to unconscious relaxation and thus acquire strength and flexibility slowly, while in the case of grown-ups, the impatience to get on quickly with encumbent forcing of the muscles beyond the safe limit for exertion, jeopardizes relaxation and produces a chronic state of rigidity and incapacity.

Complete or partial relaxation

As to the nature of muscular relaxation in bowing, it is either complete (in the sense explained above, *i.e.*, without the muscles relaxing into a sub-normal state), or partial.

In the beginning of violin instruction complete conscious relaxation is almost the only one to practice with safety; and it is most thoroughly represented by a rest of longer or shorter duration following the muscular effort, in which muscular neutrality is restored. As stated before, the greater, that is not necessarily prolonged but violent, the exertion is the longer the pause should be, as for instance in the first practice of the martelé strokes at the point, or *grand martelé*, or in the first attempts at playing fast. But as the muscular apparatus becomes more efficient and less easily tired and liable to contraction, and at the same time the bowing styles become more subtle, complicated and difficult of execution with increasing

demand on a quick responsiveness of the weaker muscles, the relaxation, although not less essential, will in many cases not be so complete as before, but represent a state which may be called the half or partially relaxed state of the muscles.

Partial relaxation

In this state the nerves and muscles, while relaxing their momentary greatest tension retain a certain unconscious ready working attitude, a state between their normal and intensified one, in which it is yet possible for them to rest and gain renewed energy. This partial relaxation may be brought about by a pause as before, and often a pause of but a fraction of a second, as in the dotted 16th rhythm, is sufficient to speed a muscle strengthened on its way again; it may also be effected through a sudden change from one muscular activity to a different one, possibly less tiring, or by a change in the bowing styles. Taking, for instance, a succession of very fast triplets at the bow middle, detached or spiccato, the insufficiently trained player will likely experience a contraction of the muscles of the hand, and perhaps wrist, resulting soon in complete rigidity if such triplets are pursued without stopping for several measures. But let him suddenly change from the triplets to slower, smooth and long detaché strokes for only half a bar, and a semi-relaxation of the muscles chiefly exerted in the execution of the triplets will take effect, guarding off the threatening rigidity and resting them after which the former triplets can be resumed until muscular contraction again makes itself felt. The change of bowing style, although it kept the muscular apparatus going and even the mainly involved muscles from being

The fraction of a second

entirely relaxed, operated almost as effectually as a pause could have done.

It is this semi-relaxation of the muscles which, especially in the later stages of bowing technic, enters so largely into account. Rapid accentuation in the softer tone shades depends almost entirely on the sudden powerful exertion and immediate complete or partial relaxing of the muscles of the forefinger and thumb; likewise the execution of many styles of springing bow arpeggio, tremolo, staccato à ricochet etc. The forefinger and thumb here by a slight pressure immediately relaxed, set the bow stick free from the contact with the string, causing it to bound upward. It is the same with the firm up bow and down bow staccato, which represents merely a quick succession of martelé strokelets and transient semi-relaxes.

Two maxims for the beginner

It will thus be seen how the relaxatory method can be made effectual in the training of the bow arm. It teaches above all two maxims for the beginner and him who would correct a faulty bow arm and transform it into a good one: First, the necessity of slow practice with continual rests between strokes for mental concentration on one object at a time in order to form correct nerve impulsès and bring the bow arm as far as it is possible under the control of the will; and second, the need of playing *mezzo piano*, not only in keeping with the weak state of undeveloped muscles but particularly to avoid all unconscious cooperation of muscles not required and therefore disturbing, confusing and weakening in proportion.

I reiterate and the student should remember that it is not forcing a muscle to the extreme limit of its powers which makes it stronger, quite on the contrary. When

a muscle has been contracted it must be given a chance to relax, to rest, to be re-nourished; if it is not and contraction is persisted in, the muscle revolts, appeals first to other muscles (mostly antagonistic ones) for assistance and if they fail, and fail they will to speed it on its way, it gives up completely, stiffens and refuses to budge further and the wrong muscles only keep up the hopeless struggle.

CHAPTER III

Physical idiosyncrasies and their influence on the work of the right arm — the importance of the right position (slant and angle to the body) of the violin — two reasons for bad bowing — the chin rest and pad — three fundamental rules for bowing and some sub-rules — the movements of the arm — the function and limitations of the hand, wrist and forearm.

The importance of a correct position of the violin

It is strange that in the case of beginners and those desirous of ameliorating their bowing so little attention is paid to their physical idiosyncrasies. Only too often the child with a swan's neck and narrow chest and shoulders exactly as the individual with the opposite characteristics, a short neck and broad shoulders, is told to use a certain ready-made pad or none and to lay the instrument on the collar bone and hold it in a horizontal position, etc., although in the former case the violin may pop up and down like a shaken reed for want of a proper support and in the latter may nearly choke the unfortunate short-necked victim, not to speak of haphazard injunctions with respect to the slant and angle of the instrument to the body, which are so largely determined by the width of chest and shoulders and of enormous influence on the work of the bow arm.

To restrict myself to things directly bearing on my subject I would advise the would-be-seeker after better bowing that before doing one stroke on the violin he should make absolutely sure of the correct position not only of

the instrument, per se, but of his body as well. Every initial fault here or every subsequent wrong movement

FIG. 8. Correct slant and position of the violin and bow while playing on the E string, at middle of bow.

has an immediate effect on the right arm, more or less marring its efficiency.

The choice of a pad, therefore, and still more that of a chin rest, should be a serious consideration. The longer the neck the thicker the pad, one might say for general guidance, but this is scarcely enough. The pad should also suit the structural peculiarities of the chest and shoulder so

The choice of a pad

FIG. 9. Same as Illustration 8 with bow on the G string.

that together with a suitable chin rest it causes the violin to lie securely in a horizontal position and above all, at the *exact slant* at which the bow can best operate on all the four strings, *i.e.*, on the G without the elbow being raised too high, on the E string so that the bow does not stand upright or nearly so as can often be observed, but lies still on a slant.

The right slant of the violin

The effect of too great a slant

For the bow to stand nearly upright in playing on the E string by reason of an incorrect (too great) slant of the violin is a mistake of the gravest consequence for all later bowing work; it is nearly always productive of bad tone production. I would add in this connection that the question of a chin rest is also far too lightly treated by the generality of students. Almost any kind is supposed to answer, when in reality nearly all the patented chin rests in the market to-day are abnormalities and many directly bad and injurious. We see chin rests that bulge out just where they ought not to, in a huge pear-like protuberance and others with no place for the chin to rest on comfortably.

The original chin rest

The prototype of the chin rest invented or introduced by Louis Spohr was, as one can see in the first edition of his Violin Method, a small plate-shaped device placed directly over the tail piece which hold the strings, not to the side of it as the chin rests are to-day. The chin rest placed thus as directed by Spohr will almost invariably give the right slant in the direction of the E string. With our present day rests one can attain the nearest approach to this, the correct position of the chin with respect to the violin when one places the chin on the side of the chin rest nearest the tail piece, and on the tail piece itself, while the jaw of the player grips firmly the remaining portion of the chin rest.

Newly devised shoulder rests, etc., are best discarded as they make the player depend too much on this, a mechanical assistance in holding the violin horizontally instead of the more discreet but always ready, natural one of additional timely pressure of the chin and perhaps a

slight raising of the shoulder which is also quite sufficient for all demands of shifting and gliding the hand up and down the finger board. For the trained hand and supple thumb such support is ample; for the untrained hand even the clumsy mechanical device will not avail much.

Of equal importance

Another matter of almost equal importance among the preliminary conditions for good bowing is, as stated above, the angle at which the instrument lies with respect to the chest of the player. Far from being the subject of a hard and fast rule applicable in all cases this position of the violin is determined, on the one hand by the width of the shoulders and chest and on the other by the length of the arm. An individual with a short arm should beware of placing the violin too far to the left lest the bow will not reach the point and get into the way of sliding off the string in the direction of the finger board; a person endowed with a long arm should be still more careful not to bring the violin too much to the right, that is, in front of the chest as by so doing all freedom of the bow arm is severely handicapped if indeed not jeopardized. In such cases one can often observe that the player is obliged to bend and twist his wrist out of all proportion in the attempt of keeping the bow at the right angle with the bridge, especially on the E string when using the lower half, and the tone extracted as a rule about equals the painful visible effect of these wrist and arm contortions.

Fundamental rules

Provided then, that the position of the instrument and the grip of the bow are in every detail what they should be and the bow arm can begin its work, — there are three *principal fundamental rules* to guide the neophyte in his first efforts.

They are:

1. The bow must be drawn under all circumstances in a parallel line with the bridge.

2. Play with the edge of the bow hair, the stick itself being slightly turned towards the saddle and peg box.

FIG. 10. Same as Illustration 8 with bow on the E string, at the nut.

3. Each string constitutes a level or plane in which the bow moves, determining the position of the arm for each string in relation to the body; in other words the upper arm with forearm, wrist and hand following, assumes a

plane or position on each string where the bow may be freely drawn without touching any other adjoining string. For playing on two strings simultaneously, the whole arm

FIG. 11. Same as Illustration 8 with bow on the G string, at the nut.

with the bow is brought into a position or plane between the level of either string, the bow hair thus gripping both strings equally, so that there are in all seven different levels for the arm and bow to operate in which must be carefully observed.

Some sub-rules and modifications

To these principal rules, supposed to be known by every beginner, I shall add the following *sub-rules* and *modifications* which may not be so well known but which, I think bear vitally on the success of the student's future efforts.

FIG. 12. Faulty position of the wrist while playing on the A string, at the nut. The wrist hangs down with the result that the fingers have altered their correct position on the stick, *i.e.*, the thumb stands at a right angle, the stick has slipped into the first indenture of the forefinger, and the little finger overlaps.

While strictly observing the correct, *i.e.*, most convenient (comfortable), level for the whole arm on each string, keep nevertheless especially when employing the upper bow half, the elbow relatively low that is, rather a little lower or nearer the body than the wrist which, with the hand, should be proportionately high. This will reduce all necessary rapid movements of the heavier upper arm

to and from the body in assuming different string levels to an easy minimum without impairing the freedom and strength of the forearm and wrist with the hand; and it will moreover promote suppleness of the wrist for all movements of the bow in crossing the strings. Do not, however, hold the elbow at any time, especially in playing on the E string lower than convenient or so low that it hampers the free movement of the whole arm, least so when playing with any continuity at the heel of the bow. Let freedom combined with gracefulness of outline be here as everywhere in bowing the guiding principle and criterion.

And secondly, play with the edge of the hair, but modify the amount of hair touching the string according to the part of the bow employed. At the extreme nut change bow with as little hair as is compatible with a comfortable (not too much bent out) position of the wrist and with tone quality, increase imperceptibly the amount of hair towards the middle and beyond so that at the point the hair lies somewhat more flatly, (broadly) on the strings while the stick is still (only a little less) turned towards the saddle.

Reasons for modifications

The reason for this modification of the fundamental Rule 2, lies in the fact that the natural bow weight varies at the different parts of the stick and has an appreciable effect on the tone produced. By varying the amount of hair touching the string according to the lighter or heavier bow weight this inequality of tone is to some extent neutralized; besides a change of bow at the nut with the hair turned well edge-wise makes for delicacy of touch and inaudibility, a great consideration when the aim is artistic finish and beauty of tone. At the point a broader contact of the

hair with the string is a distinct advantage in as much as it allows the forefinger (see "Tone Production," Chapter V) to exercise any pressure required of it almost directly downward (perpendicularly) while with the hair edgewise such pressure would have to come more sidewise and be in proportion less direct and effective. Moreover it would in this circumstance force the elbow to protrude as against the wrist and hand which is to be avoided as much as possible.

A protruding elbow

A protruding elbow is rarely justified. It is productive of many faults in bowing; a stiff wrist and bad tone production (a forced tone) are in most cases traceable to it, although there are certain bowing styles which seem easier of execution with the elbow held high and not a few, mostly short arm players, undeniably manage to do well with it thus.

With these rules and sub-rules in operation the movement of the arm in a down or upstroke will be approximately as follows: Starting at the bow heel, say on the A string, the upper arm is drawn forward just enough to permit this start at the nut without the hand (rounded, shell like), altering its position on the stick, that is the angle of the thumb to it being changed. The wrist is bent out, but not more so than necessary to form a graceful curve with the hand and forearm or a rounded continuation of the forearm, not an angle. The upper arm to the elbow lies about on the same plane level as the bow on the A string or just a trifle lower, that is, nearer the body. (See reasons above.)

As the bow is being drawn down at a right angle with the bridge the upper arm gradually pulls itself back, at the same time the bend of the wrist becomes less pronounced.

On reaching the bow middle the upper arm ceases moving backward; it remains hanging down from the shoulder while the forearm continues the stroke to the point.

During the whole stroke wrist, hand and finger joints continually accommodate themselves by more or less bending and stretching to the varying positions of the rest of the arm so that the bow may be kept parallel with the bridge and at the same distance from the bridge and finger board. (See below.) Indeed through the *flexibility* of the *finger joints* the grip of the bow hand *changes* almost *imperceptibly* throughout the *whole stroke.* If the arm is short the yielding, stretching and bending of the wrist and hand will be less pronounced than in the opposite case; on the other hand the upper arm will be found to be drawn further forward in playing at the lower bow half and more active in proportion.

Altogether in either case the work for the arm with the lower half is more strenuous and complicated, involving as it does not only the coöperation of the heaviest part of the arm but also compelling the wrist and hand to an attitude which cannot be called favorable on the score of lightness and agility. Much in the art of bowing may, therefore, be said to aim at giving to the heel part of the bow the lightness and agility of the point and to the point the strength natural to the heel part.

Yet to be mentioned is, that in playing at the point the wrist may bend a little inward, unless the arm be very long. Such a low position of the wrist is preferable to any other that may suggest itself for avoiding it, as it brings about a corresponding relatively low position of the elbow and favors a direct downward action of the forefinger on to the stick. (Compare above remarks.)

The function of the upper arm

From the foregoing remarks it will be clear that the *function* of the *upper arm* is limited to two motions, viz., moving to and from the body to enable the bow to assume the different string levels, and moving forward and back in the employment of the lower bow half. Although the muscular apparatus controlling these two movements is very complex and the sinews of strength and endurance of the whole arm lie here, the movements themselves are discreet in their extent, especially the back-and-forward one; and comparatively little is apparent.

Operations of the forearm

Much more varied and in evidence are the *operations* of the *forearm.* Indeed, the majority of all bow movements proceed from the elbow down, not only those of the forearm itself, but those of the hand as well. As mentioned before Dr. Steinhausen seems to have been the first to draw attention to the physiological fact that, since the natural movements of the joints in their sockets are circular, in order to draw the bow in a parallel line with the bridge, the forearm must describe a rotatory motion in the elbow joint which is consummated in the hand.

Dr. Steinhausen's discovery

Anybody who pulls up his shirt sleeve and watches the work of the forearm and that of the muscles connecting the elbow joint with that of the hand will find this verified. He will notice that for every down and upstroke, whether long or short, detaché, staccato or spiccato not the wrist and hand in the first place but the forearm is responsible, the bow movement being caused by a gradual or fast, emphatic or less emphatic turning of the forearm in the

elbow joint and a corresponding action of certain muscles centered there and operating the hand.

The most potent factor in bowing

The forearm then while subservient to, and for strength largely dependent on the upper arm, is in its turn the master of the hand and through it a most potent factor in the art of bowing. Its activity is practically unlimited. It not only controls the length and strength of every stroke, adds where the possibilities of hand-motion end and aids where the strength of wrist, hand and fingers proves insufficient, but its working is as subtle as it is varied, whether it has to do with a rapid transition of strings or giving the bow hand pose and stability in holding out a tone pianissimo.

The wrist and hand

As to the *hand*, that wonderful contrivance of nature, it is connected with the forearm by a strong elastic band of tendons and muscles fortifying and enabling it to bend itself in every direction — the *wrist*. Much misapprehension prevails even among expert violinists with regard to the part the wrist plays in the general scheme of bowing. Wrist-fanatics as they may be called, who advocate the loosening of the wrist to the last degree of looseness, leaving other parts of the arm weak, have become fewer since the ascendancy of the modern French and Franco-Belgian School but they are still among us. Many times also when the wrist is spoken of undoubtedly the hand is meant, as, for instance, in the case of short strokes done by the hand from a loose wrist; these are wrongly called wrist strokes. At all events the wrist being only a connecting link, a bridge, an intermediary between the forearm and the hand, its use depends on and is determined

by both and is an independent factor only in so far as it may be able to transmit the dictates of the will through the forearm to the hand and *vice versa* or fail to do so. In this ability or inability lies nevertheless its great importance for the efficient work of the whole arm, and no violinist can afford to neglect developing his wrist to the utmost degree of suppleness, flexibility and elastic strength, be it on somewhat different lines and for different ends than was formerly much the accepted idea.

Movement in two directions

There are two directions in bowing in which the hand through the instrumentality of the wrist is required to move with respect to and in connection with the forearm, viz., sidewise, that is semi-vertically or in the direction (between the horizontal and perpendicular) of the bow stroke on each string, and perpendicularly or approximately so when the bow is to cross from one string to another by hand movement alone or through the hand in connection with the forearm. A purely sideway (lateral) movement on the development of which formerly so much effort was spent, lying outside the exigencies of bowing as Dr. Steinhausen's discoveries have proved, the futility of loosening the wrist in that direction needs no comment.

With the wrist in an undeveloped state the hand is either unable or disinclined to move in the two directions required, especially the semi-vertical one in which case the wrist is called stiff; or it is too loose, flabby, weak and thereby unfit for the demands made upon it in bowing.

The stiff wrist

While it is true that the characteristic sidewise motion of the hand, because very rarely employed in the ordinary daily functions of the arm, is often found difficult, the feeling of

stiffness in the wrist is by no means always in such cases the fault of the wrist. For it can be observed that the individual is an exception who cannot bend and move his hand freely in any direction. The wrist in most instances is unyielding only in connection with the bowing apparatus. It stiffens with the beginner as soon as he tries to move the hand holding the bow independent of the bow arm. The fault here attributed to the wrist is in reality the work of certain muscles connecting the hand with the forearm (elbow joint) which, undisciplined, participate when they should remain in abeyance, interfere with others at work and prevent the hand from moving independently. And this state is the result of wrong nerve impulses, confused nerve associations in the first place. To elucidate this point I should mention that on each side, inner and outer of the forearm among others three principal muscles connect the hand with the forearm, respectively elbow joint. They form three groups of muscles each consisting of two which while supplemental to each other, act more or less in opposition.

The result of wrong nerve impulses

Group I of two muscles, one starting in the inner side of the hand, the other at the base of the large knuckle of the middle finger bends the hand up and down perpendicularly, respectively.

To the physiology of the hand

Group II of two muscles starting a little above the large knuckle of the little finger and running to the elbow joint, bend and stretch the hand outward and downward in the direction of the little finger.

Group III of two muscles starting at the large knuckle of the forefinger and connecting with the elbow joint, bend

and stretch the hand outward and upward towards the thumb side of the hand.

Of these six, it is particularly the muscles in Groups II and III, aside from muscles of the fingers themselves which, in an undisciplined state, are apt to interfere with each other, act contrary to and hamper the intended movement of the hand and thereby cause what is felt as stiffness of the wrist.

Flabbiness or too great looseness of the wrist, on the other hand, may be said to be a mental as well as a physical condition, a state of lethargic nerves and of muscles requiring energizing, a toning up, a strengthening to effect a closer knitting together and combined action of the hand with the forearm.

CHAPTER IV

The uselessness of half measures in correcting a faulty bow arm — the necessity of beginning at the beginning — the hand stroke — the bow movement brought under the control of the will — eliminating the participation of the forearm — the fourfold purpose and benefit of hand-stroke exercises — the lengthened hand stroke (forearm stroke) — the half and whole bow stroke — the inaudible change of bow — will control over extent (length) or bow movement — bow division — a third kind of control, the light touch — what Tartini meant by the right start of a stroke — like the painter's brush — physical process of tone-production.

To correct a faulty bow arm

The student earnestly desirous of improving his bowing should first study his own case, to see it in the light of the remarks made in the preceding chapters on the physiology of the bow arm etc., and on having discovered his particular shortcomings, work to correct them. By this I mean that he should try to detach himself as much as possible from his hitherto violin-playing self, forget what he knows or thinks he knows and begin correction where it ought to begin, at the beginning.

A long experience teaches that corrective half measures in bowing are useless. An acquired bad habit is an enemy which it is almost impossible to dislodge from its stronghold, mental and muscular, entrenched, as it were, behind a thousand and one hidden obstacles.

It is of no avail to concentrate on the practice of one bowing style in which the student may find himself

deficient so long as all the conditions incumbent on, or most favorable for the right and easy execution of this bowing style have not been established. Countless hours will be wasted in the endeavor and more than wasted if measured by the discouragement which is sure to follow such futile efforts.

Pupils can hardly be expected to possess the searching critical faculty towards their own work which forms the appanage of the ripe artist, he may nevertheless strive for it in trying to discover what is wrong in his particular case.

The first step

And the first step to this is to start from the beginning. Passing over what has been explicitly dealt with in the first chapters, *i.e.*, the position of the violin, the grip of the bow, etc., as indispensible preliminaries to good bowing, by *beginning* I mean, work on the open strings not, however, with the whole bow stroke but only a small portion of it, one wheel as it were of the complicated machinery, namely the *hand stroke.*

Next to a wrong grip of the bow an imperfect use of the hand is responsible for most of the prevailing incapacities in bowing. The student therefore should before all learn the right functioning of the hand by bringing its movements under the control of the will, independent of any of the forearm (except the rotatory one in the elbow joint).

Hand stroke exercises

Choose, to start with, the G or D string because the bow lying horizontally, or nearly so, its natural weight and that of the hand can be more fully and advantageously utilized than when the bow lies on a slant as on the A and E strings.

Hold the *bow lightly* in the hand (with all five fingers) and *place* it an inch or two below its *middle* on the string, its natural weight only weighing on the latter.

Concentrate your will power on the hand, more especially on the ring finger side of it (the little finger gently touching the bow with the tip, see Chapter I). Push or rather project the hand forward by an act of the will (as though detaching it from the rest of the arm) as far as it will go without consciously helping with the forearm and without appreciably altering the grip of the hand, *i.e.*, the position of the fingers on the stick except for a slight yielding and bending (rounding) of the finger joints, enough to assist the hand in this short upbow motion which with untrained wrist need not exceed half an inch in the beginning.

Under control of the will

The movement, we will call it with Steinhausen a supination of the hand, should be quiet but not too slow. Strictly avoid all pressure, however slight, of the forefinger.

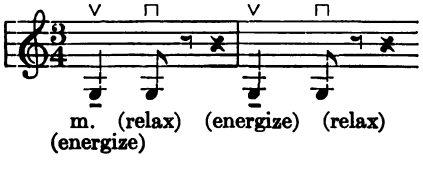
After a pause of a moment during which the muscles effecting the stroke remain energized, relax them and let the hand with the bow, as though of itself or its own weight, return to its former position.

A relaxatory rest of at least the length of the preceding stroke should follow before the same hand motion is repeated as in exercise I.

Relaxatory rest

Repeat this exercise from 8 to 10 times on each string with short rests intervening. While the actual physical effort of the muscles is almost nil the nervous one of actuating

Ex. 1.



them to this effort (energizing them) will nevertheless be felt fatiguing in proportion as the pupil's mind has been unaccustomed to giving distinct, conscious nerve impulses and his muscles are unaccustomed to being acted upon directly by the will.

In playing on the E string, I may mention that the grip of the bow should be just an idea firmer than before to guard against any possibility of the latter slipping through the fingers.

After this exercise has been practiced at the bow middle it may be done at the center of gravity (a few inches below the middle) and subsequently at the nut. Here the bow weight will make itself more felt, together with that of the hand (kept relaxed) and the tone will be somewhat louder which at this stage is of no consequence. At the same time the ring finger side of the hand, especially the little finger, while executing the supinatory movement is called upon to balance the top heavy stick and is thereby more severely taxed.

The grip of the fingers must not undergo a change except that the whole hand is a little more rounded, while the wrist is kept well elevated. All pressure especially of the forefinger should be carefully avoided.

Subsequently the same kind of hand-stroke exercises may be practiced at the upper half of the bow until, by progressive stages, the extreme point is reached. Here, owing to the elongated portion of the hand on the bow and the stretched one of the arm which hamper an easy independent movement of the hand from the wrist, a discreet (unconscious) aid of the forearm for even very short strokes need not be avoided; also the little finger may be allowed to slip off the stick, rather than that, by

being kept on, it should create stiffness or be the cause of an unfavorable high position of the elbow.

The slight supinatory movement of the hand (near the point) for the upstroke is quite sufficiently carried on by the ring finger alone and still more perfectly if its neighbor and assistant, the little finger, hangs loosely by its side.

Benefits derived

The benefit to be derived from these exercises, elementary though they seem, is a fourfold one:

1. They induce correct dissociated nerve impulses and muscular action under the direct control of the will.
2. They introduce the student, if he has not practiced it before, to the principles of muscular relaxation.
3. Through them he learns to move the hand independent of the rest of the arm and thereby acquires a facile, inaudible change of bow.
4. They teach the student the bow weight conditions and possibilities through the whole length of the stroke which he is later to utilize, and they beget with this an unconscious subtle sense of touch, a feeling for, and adjusting of, the hand and fingers to, what I will call the most favorably responding spot on each string, the place where the string vibrates most easily and agreeably to any moderate (mild) drawing effort of the bow. It is the place—we might term it the right stroke-bed on the string, different on each string and also different on different instruments where the student should accustom himself to draw his bow for all work under normal conditions of speed and pressure, the place where the vibrations of the string will, under these conditions, produce a tone

quality between p and f — mezzo forte. On the G and A string the right favorable stroke bed will be found, generally speaking, at about the middle between the bridge and finger board; on the D a little nearer the latter, on the E nearer the bridge.

Lengthened strokes

As a next step in the direction of corrective exercises the strokes should be lengthened to one-third of the bow length.

Beginning again at the middle with the upstroke the student will now give a nerve impulse to move the forearm from the elbow joint, taking care however that the hand retains in every respect the former attitude, that is, holds the bow lightly (forefinger passive) and pushes or projects each upstroke with a light supination of its ring finger side and loose change of bow before it is drawn back.

The *speed* of the *bow movement* remains the *same* but because of the strokes being longer a *slower tempo* must be taken. All haste is to be avoided. Complete *relaxation* of the muscles this time sets in only *after* the down stroke but the muscular effort is felt more distinctly in the upstroke. For in the down stroke what there is of effort is needed more in the nature of a mental strain, the mind guarding the direction, length and quality of the stroke.

Change of bow at the nest

Next the half bow stroke should be practiced in the same manner but in this rhythmical form:

Ex. 2.

The change of bow at the nut requires special attention and patient, intelligent endeavor.

It should be noticed that on arriving at the nut the forward move of the forearm (and upper arm) is arrested and the bow is being pushed just a little (half an inch or so) further by the hand alone (finger joints yielding) through a light supinatory motion. This is immediately followed by an equally light pronatory movement of the forefinger side of the hand, drawing the bow back in the opposite direction.

The whole proceeding is a delicate hand stroke of the kind practiced before but without pause between up- and down stroke. *Too great looseness* in the joints, *i.e.*, too *relaxed condition* of the muscles during the change from up- to down stroke should be *avoided* as soon as the elementary technical difficulty of the proceeding has been overcome. The latter is not inconsiderable as it involves balancing the top heavy stick so perfectly by the whole hand that no appreciable strain falls on the little finger while it is chiefly engaged in holding this balance and at the same time reversing the bow movement; moreover, in spite of the necessary flexibility in all the finger joints and looseness of the wrist the hand must retain its full control over the stick.

The slightest unevenness in the tone quality or loss of control in changing bow are imperfections for the correction of which the student will do well not to count time or labor, as a perfect, inaudible change of bow at all parts of the stick is a safe passport to artistic bowing.

Whole bow strokes

Only when half bow strokes (lower, middle and upper half) have been so throughly mastered that the complex movements of the arm, wrist and hand are automatically certain, free and easy, whole bow strokes may be taken up, at first slowly, 4 beats to each stroke, then a little faster (3 and 2

beats), finally in the form of quarter notes. *After each group* of three or four strokes a short, *relaxatory pause* should be made to prevent any possible tendency on the part of the muscles of the fingers or wrist to stiffen. The student should also accustom himself at once to *dividing* the bow length *equally* according to the *number* of *beats* to the stroke, in other words, if he counts 4 beats to the whole bow length each beat should receive one-quarter of the bow; in $\frac{3}{4}$ time, one-third, etc.

Dividing the bow length equally

This is the first step towards mastery of the stick. The natural and common tendency of drawing the bow faster at the beginning of every stroke must be combatted from the start.

Perfect evenness of the stroke should be the aim of the student as soon as he has passed the elementary stage. As *tone quality* on the violin *depends*, aside from other acoustical considerations, such as the number of over tones produced, on the *amplitude* of the strings' *vibrations*, that is, the degree of *force* with which the string is made to *vibrate*, and this again on (the proportion of) speed and pressure of the bow, it is obvious how necessary it is, through a careful division of the bow length according to the number of beats, to regulate and equalize the speed of the bow movement. On such established speed-basis the other tone-quality-determining factor, pressure or weight can then be more readily ascertained and adjusted.

Amplitude of vibrations

Only *equal* bow *weight* will, *under* a *continued equal ratio of speed*, insure *evenness* of tone. I have already mentioned that the bow weight varies at different parts of the stick and with it the pressure conditions.

Bow weight and tone

At the nut the natural weight of the bow more than suffices to produce, ât a moderate speed, a full *mezzo forte*, *i.e.*, the most desirable tone shade; at the middle third and increasingly towards the point this natural weight has to be supplemented by varying pressure.

With this general principle in mind and the bow-speed under control, the student should from the first train his ear to discover any unevenness of tone resulting from the varying bow weight and try to ameliorate it. The refining process of the aural sense in most cases reacts on that of touch with the result that in a comparatively short time the hand as a whole and the fingers individually (forefinger especially) automatically adjust their action on the bow whether for pressure or moderating such pressure to the ever-varying conditions which the different parts of the stick and the speed of the bow movement impose for every string and tone.

Until this end has been attained the *best* mechanical *means* towards it is for the pupil to see from the first that he always *draws* his bow, from the *nut* to the *extreme* point, in what I called the most favorable stroke-bed, *i.e.*, at a *certain distance* (see above) *from the bridge* on each string. It is surprising how seldom this unfailing simple and easily followed device is brought to the student's notice and how rarely it is observed.

Further bow divisions

After the use of the hand stroke alone and in connection with the forearm has been learned and it has been employed on whole and half bow strokes in various rhythms, the student should concern himself with a further division of the bow length. This is a matter of importance. It means nothing less than learning to calculate to a nicety and

bring under the control of the will any stroke length and the extent and power of the muscular efforts involved in employing it. In other words it means that at a precise moment, according to the length of the stroke, the pronatory motion of the hand is made to change for the supinatory one with a corresponding effect on the attitude of the muscles controlling either, or that at a precise moment the upper arm enters into operation, ceases to move and resumes its activity, etc.

What has hitherto been done by the student in this direction can only be regarded as a beginning. Rarely a pupil determines beforehand the exact amount of bow to be used for a certain end. He leaves this to chance. But chance is never to be depended upon in an art so complex as bowing.

Corrective exercises then should tend to establish an unfailing, automatically-working sense or muscular feeling for and control over: firstly, what constitutes a half bow, lower, upper and middle half; secondly, over what constitutes one-third of the bow at the nut, middle and point and thirdly, and what constitutes one-fourth and less of bow length. These various lengths should be practiced by themselves (as in the example below) and in combination with cantabile whole bow strokes and slurs, etc.

The one-third length is of particular significance as it is employed for the smooth detaché at moderate speed (see next chapter), being the right amount of bow which at such a tempo, to insure breadth without being unwieldy and awkward, calls for a free use of the forearm as against that of the hand alone.

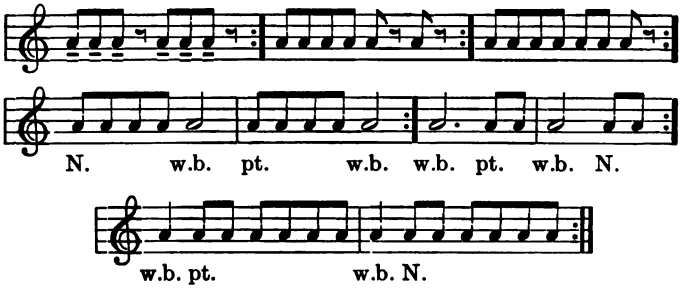
One-fourth of the bow length, calling for an extended

hand stroke or intermediary between hand and forearm stroke, lends itself best to the execution of triplets at moderate speed and detaché and other work for which, on account of speed or other reasons, the use of one-third of the bow would be too much (too slow, heavy or clumsy), and that of hand strokes not sufficient (lacking breadth).

This correct feeling for lesser amounts than half bows is best acquired through the practice of martelé and modified staccato strokes (see Chapter VII), so that exercises done in this connection may be considered as anticipatory of these bowing styles.

More on the subject is also contained in the next chapter. The student should practice such corrective stroke-length exercises (Ex. 3), in small groups of strokes with relaxatory pauses, at first slowly and gradually faster, watching carefully the intended length of the strokes, if necessary, by means of chalk marks on the stick. The open strings and scales here form the best material

Ex. 3.



(to be practiced with one-third and one-fourth of the bow for the eighth notes at the middle nut and point).

Ex. 4.

(with one-fourth and less of the bow for the triplets).

A third aspect of bow control

There is one other matter calling for corrective measures and rounding off this part of preliminaries to the study of bowing styles, a third aspect of bow control to which I wish to draw the student's attention.

It is of an æsthetic as much as technical nature and inseparable from perfect tone production on the violin even in its earliest stages. Tartini, the great Italian master of the 18th Century, refers to it in his lesson by correspondence to his pupil Maddelena Sirmen which has come down to us. After telling her "your foremost study must be devoted to the use of the bow. You must become absolute master over it in passages as well as the cantabile," he says, "Setting the bow on the string is the first thing. It must be done with such lightness that the beginning of the tone to be produced resembles more a breath on the string than a hitting it. After this light start of the bow the stroke is immediately continued, and now you may increase the tone as much as you like, for after the light start there is no more danger of the tone becoming screechy or scratchy. This light start with the bow you must master at every part of it, the middle as well as the two extreme ends, in the up- and in the down stroke."

Like a breath

The right start! More like "a breath" Tartini says. The bow merely touches, kisses the string, and there is the tone pouring forth in silvery purity. That this right start pre-supposes a right way of holding and applying the bow, in fact the observance of all the rules for the beginner and much more, the old master passes over in his letter, but how finely he grasps the essential point of the first and foremost thing for the violinist, tone production, the thing which precedes everything else and before the pupil has set one finger on the finger board.

And this right start is synonymous with the right touch. Only the artist really has it. It is what the rails are to the steam engine, what the sensitive finger tip is to the blind. It is a touch born, as it were, in the finger tips and felt in the hand and wrist, while forearm, elbow and upper arm behave like interested on-lookers seeking only the best point of vantage.

The right touch

To secure this touch, this start, every joint and muscle of the hand, the thumb, the forefinger must be limber and yet alert, like a fine race horse. It is indeed the alpha and omega of bowing and one can hear many a violinist performing bewildering feats of technic who has not mastered it and never will. The acquisition of this kind of touch of the bow, although put by Tartini first in his curriculum would seem the fruit of long training, the product of a fully developed muscular and sensitory apparatus rather than an object for preliminary corrective exercises; for the delicacy it implies, (as all delicacy which is not synonymous with weakness) must be, and is born of controlled strength. But I mention it here because I think knowing and doing are, in this case at least, not so very far apart.

It is this fine feeling for delicacy, for what is refined, artistic, finished and beautiful which, early inculcated in the student, begets with the knowledge the wish and in time becomes father to the actual accomplishment. Without the knowledge and the wish, the deed will as likely as not, not be forthcoming or if so, come much more tardily.

How many students and even experienced players, consciously or unconsciously, so soon as they lay the bow on the string, begin, if not with a grating noise reminding one of a person clearing his throat before speaking, — at least with what to all intents is a martelé start, the bow hair biting the string instead of kissing it, when withal this gentler contact was perhaps their intention. And this bad habit is difficult to cure.

Not only this, but comparatively few of those once afflicted with it yield easily to persuasion and demonstration that what they produce is not what they (possibly) meant to produce, not a breath of a tone but something in the nature of a steam whistle. Habit has deadened even their auditory senses to all finer æsthetic appeal.

For special corrective exercises towards lightness of touch, in so far as they are not already covered in the preceding chapters or are bound up with the study of the different bowing styles to follow, I would only suggest that the student, gripping his bow lightly and beginning at the nut, alternately, places, draws and lifts it, like a feather. Proceeding thus, inch by inch to the point and back to the nut, he should with each lift take care that he relaxes the muscles of the hand (and forearm) and keeps them relaxed, and energizes them again only for the succeeding light contact of the bow with the string.

Like the painter's brush

In as much, however, as the start of a stroke is by no means always like a breath, but on the contrary, may encompass all dynamic shades and other bowing varieties such as staccato, etc., it will be well not to expect too much from these and similar exercises, but rather rely on the intelligent application of the general principles, physical and physiological, of bow contact and tone production for reaching the æsthetic goal. In this it may help him to remember that the violin artist uses his bow not so very unlike the artist painter his brush, the Titian, Rembrandt and Meissonier rolled into one, who now with bold, broad strokes, and now with infinitely delicate ones and little dabs, too, here and there, pours out his colors on the expectant canvas.

Physical process of tone-production

In conclusion, the purely physical process of tone-production on the violin is in the words of Heinrich Davidsohn as follows: "The rosined bow hair through its adhesive friction tears the string at the point of contact with it, out of its state of rest. The string adhering to the hair is pulled along for the fraction of a second, then suddenly it tears itself free because its growing elastic tension has become greater than the impelling force of the bow hair, gives it a shock, is again seized by the bow and pulled along, whereupon it again tears itself loose, swings back again, and so forth as long as the stroke lasts. The shocks which the string gives to the bow hair at the end of each vibration communicate themselves through the point to the bow to the stick and set the latter into vibrations corresponding in number and periodicity to those of the string."

This physical process points to one general outstanding principle for tone production, embracing all specific ones, viz., to attain as perfect a vibratory condition of the string (regularity of its vibrations), as possible. Through all the kaleidoscopic variety of bowing styles this principle holds good and every stroke should bear it out.

CHAPTER V

Three principal families of bowings — smoothly detached strokes or *detaché* — forearm and hand strokes (extended hand stroke) — perfection depends on three features — length of stroke determined by speed and dynamic quality — smooth change of bow — two reasons for a roughish finish — bow pressure — the action of the forefinger — the practical application of the *detaché* — in triplets — *detaché* and string crossing.

All bowing styles may be classified under three principal heads, viz:

1. Smoothly detached and connected ones of which smoothness forms the chief characteristic and which are obtained through breaking up into smaller portions the full bow (cantabile) stroke as hitherto practiced; and which also include all slurs on the same and over several strings as well as combinations of slurs with such smooth portions of the cantabile stroke.
2. The non-legato or so-called staccato and martelé bowings with their modifications including combinations with other styles, slurs and smoothly detached ones.
3. The bowing styles which are produced through the bow temporarily leaving the string and are known as springing bowings, with their modifications and combinations with other styles.

By breaking up, as I said, the bow length into portions

and increasing the speed of the detached strokes so obtained we get what in the violinistic nomenclature goes under the traditional name of *detaché* or, more specific, smooth *detaché.*

Smoothly detached strokes or *detaché*

It comprises both hand strokes and forearm strokes, *i.e.*, short strokes done chiefly from the hand and longer strokes for which the conscious aid of the forearm is needed. But as hand strokes with the forearm quiet (*i.e.*, only sympathetically affected through the muscles controlling the back and forward movement of the hand) are more or less limited to softer tone shades, by *detaché* is more generally understood a forearm stroke with the *hand* as the *medium* to *round* it *off* smoothly and the wrist, if one will, as a second medium to keep the bow in its parallel-with-the-bridge direction by subtly bending and stretching itself more or less according to the part of the bow employed. Or, if one wishes to lay special emphasis on the importance of the hand in the execution of the *detaché* one might also call the *shorter detaché,* qualifying it, instead of forearm stroke, lengthened or extended hand stroke.

Three features

The *perfection* of the *detaché* whether done with longer or shorter strokes, but particularly in the former case, depends on *three features:* first, the exact *length* of the strokes in proportion to the intended speed and volume (dynamic quality) of tone; second, the smoothness of the *change* of *bow;* and third, the *sustained evenness* of *tone,* not only with respect to down and upbow (*i.e.*, not heavier in the down bow) but all through the stroke, whatever its length, and during the change of bow.

The right length

Speaking of each of these features separately, the choice of the right proportionate length of detaché strokes and, incumbent on it, that of whether hand strokes or forearm strokes are best suited for a particular purpose, is a matter of noteworthy importance. Much of the clearness of a passage, indeed, very often its playableness depends on it.

As a general rule, *long strokes* and *speed do not go* well *together*. For any but a fairly slow tempo (two strokes to a Moderato beat), one-third of the bow length may be considered the outside length and this preferably at the upper half where the elasticity and lighter weight of the stick, together with the elimination of the upper arm in the execution of the stroke, favor longer strokes. A relatively longer stroke here will also produce freer vibrations of the string, a more carrying tone, while at the lower half and nearer the nut the same stroke in the same tempo is likely to sound thick, besides feeling uncomfortably unwieldy to the player.

For any more rapid detaché, embracing combinations of slurs and detaché strokes, triplets, etc., the use of from one-fourth to considerably less of the bow should be made the general rule. Shorter strokes in the first place require somewhat less firm or firmly sustained stopping which, as the *pressure* of the *fingers* ought at all times *exceed that* of the *bow* on the strings except in ff (or the notes will sound blurred), is a decided advantage in a fast tempo; but before all they are, if continued in such a tempo, less liable to create a contraction and, subsequently a paralyzing stiffness of the muscles involved than would be the case with longer strokes under the same speed conditions.

How long or short, comparatively, such shorter strokes may be made to best meet the requirements in every case and whether and when they are to be hand strokes or not, that is a question determined not by the speed alone but by the desired dynamic quality of the stroke. It is a common error that a pupil will make his detaché strokes too short when they should sound broad and full and too long when speed calls for lighter stopping and less friction of the bow hair.

It should be borne in mind that, as previously stated, hand strokes can never be what one would call loud or exceed a certain limited length though this may vary with players according to the natural looseness of the wrist.

If a passage calls for fast strokes not louder than *mezzo forte* (mf.), hand strokes (with the wrist loose) may possibly be the best available medium; but if that same passage is to be played f, the aid of the forearm, however slight (in view of the speed), will be needed to re-enforce the weaker organ, the hand, without necessarily lengthening the strokes to any appreciable degree. For in proportion as the *hand* brings any *sustained pressure* (be it through the forefinger alone) on the bow in order to increase the tone, its *flexibility* is *lessened* and with it its functional independence.

Smooth change of bow

Secondly, with respect to the *smooth change of bow* in detaché, this would scarcely seem to require any special emphasis or explanation. The fact is, however, that much of the detaché we hear is imperfect just on that account. Jerkiness indeed is more common than smoothness, every stroke being marred in this case by a roughish finish especially in *forte*.

The reason is mostly twofold: Either the bow is gripped too lightly and the wrist is too loose with the result that after every stroke there is a slight recoil of the hand which makes itself felt and heard by a jerk, or, the muscles of the forearm instead of timing exactly their contractions in the elbow joint for bending and stretching, do so just a moment too soon or too late, *i.e.*, change from one contraction to the other before or after the hand with the bow has arrived at the intended terminal point of the stroke. In other words the *muscular effort* of the *forearm* put into operation is in *excess* of, *or* is *insufficient* for, the *calculated length* of the *stroke.*

This defect, the result of incorrect (mixed) nerve impulses having become chronic, can only be permanently cured by corrective exercises such as have been advised in the previous chapter for bow control and bow division.

First, the exact length of the stroke (say one-third or one-fourth of the bow) should be marked with chalk on the stick and then, applying the principle of muscular relaxation, the strokes practiced in groups of two, three, four, six and eight notes and more with rests following in each case, while the finish of each stroke is being carefully watched so that the contraction of the muscles of the forearm for both the down and upstroke exactly coincides with the change of bow, that is, the change from the pronatory to the supinatory motion of the hand and *vice versa.*

With regard to the former defect of too great looseness of the bow grip and the wrist causing a jerky recoil of the bow, I repeat that the dynamic quality of the stroke is an important factor in detaché, not only determining to a large extent the length of the strokes, the part of the bow and

the question whether only the hand or the forearm and how much of the latter is to be employed, but also the degree of firmness with which the hand grips the bow and how much of pressure on the stick is to go with it. So long as a passage is to be played p or mp and hand strokes are being used no recoil will be felt; but if this passage is *forte* calling for longer vigorous strokes and the aid of the forearm, too loose a grip of the bow and loose a wrist will have to be avoided. Hand and wrist are then only the media to effect a smooth change of bow and guard the quality of the stroke while the execution of the stroke movement itself rests with the forearm.

These remarks apply also in large measure to what constitutes the third requisite of the perfect detaché, that of sustained evenness of the strokes, not only with respect to down and upstroke but all through the stroke whatever its length and during the change of bow.

Sustained eveness

Broadly speaking, in the true, smooth detaché the bow hair should ever *adhere closely* to the strings, *brush* them, suck them, if I may say so. To attain this end it is necessary that the weight conditions of the bow stick be fully utilized both by themselves and in relation to, and in connection with pressure on the bow.

The student already has had occasion to ascertain and test these conditions: Near the nut, the natural weight of the stick (either full or alleviated) if allowed to exert itself, by causing sufficient friction between bow hair and string will also supply that desirable "adhesive" quality to his detaché strokes, at least for all but the loudest tone shades when the natural weight can easily and discretely be supplemented by that of the hand. The necessity,

however, of additional weight, that is of pressure, makes itself felt as soon as we leave the lower half of the bow, and if anything like the same tone quality and adhesion to the string is sought, we must increase the pressure with a nearer approach to the point.

This is, of course, the principle for all tone production on the violin and has been previously dealt with; it appears here only from a new angle or gains a specific nature in its relation to the greater speed of the bow movement. At all events bow pressure is so important a factor in bowing technic that some other rather more detailed explanation of its nature in this connection will be opportune.

Bow pressure

Bow pressure, transient and sustained, comes nominally from the *forefinger* with the thumb as resisting force; indeed, it does so essentially to almost every degree of strength. But the other fingers, nevertheless, contribute; the *hand*, as a whole *contributes* and the wrist and the forearm contribute — each in their *turn*, and one aiding the other.

If it is borne in mind that the stroke movement parallel with the bridge is based on the rotatory one of the forearm in the elbow socket and carried out through the pronation and supination of the hand (the middle finger and thumb forming the axis) it will be understood that it must be the forefinger as representative, initial pronatory force which primarily supplies the pressure for the down bow. As regards the upstroke the supinatory force coming (apart from the share of the forearm) from the ring finger side of the hand (ring finger and little finger) and being, as to pressure by itself negligible, it is evident that to produce the same pressure on the bow, the *forefinger* must now *act* as a *brake*, resist-

Acting like a brake

ing, retarding, weighing down the supinatory motion and making it even in point of strength (tone quality) with the pronatory one.

Experiments have also revealed the fact that the *forefinger* does *not* exercise its *pressure perpendicularly* on the stick, as has been believed, but, in accordance with the rotatory motion of the hand *semicircularly* (screw-like), for the down stroke and similarly for the upstroke only in the opposite way, *i.e.*, as explained above, like a powerful brake resisting the rotation of the hand.

In a brilliant, broad detaché at the upper half, therefore, as the bow is rapidly being drawn up and down, the forearm performs its rotation and the principal stroke movement, the wrist its duty of more or less bending and stretching, the hand its more subtle, unconscious pronations and supinations, with a smooth inaudible change of bow, and all the while the forefinger and ring finger side of the hand keep up a continuous alternating but absolutely even bow pressure play in the manner described and varying in intensity according to the speed, the thickness of the string, the height of the tone and the (heavier or lighter) part of the bow employed.

That adhesive quality

Even during the change of bow the pressure never ceases and yet the player is barely conscious of it. And this is not an easy matter. Only well-trained muscles of arm, hand and fingers will lend the strokes that even, "adhesive" quality which we couple with a perfect smooth detaché.

The practical application of the detaché

In summing up the preceding remarks as to their bearing on the practical application of the detaché and the influence the different parts of the bow have here on the dynamic quality

and speed of the strokes, one might generalize in the following advice: For brilliancy with speed — choose the middle of the bow or a little above, and strokes not too long (preferably one-fourth or less); for speed with less brilliancy than roundness and a sustained carrying tone quality — one-third below the point and the strokes may be somewhat longer; for greater delicacy the point, or hand strokes, at either middle or upper third. In combinations of slurs and detaché also preferably hand strokes in the softer shades or, in the louder ones, shorter forearm strokes (lengthened hand strokes).

The detaché at the nut in varying tone shades and tempi, while of limited practical application (except in combinations with slurs) is nevertheless highly recommended for study as it tends to give freedom and ease of movement to the upper arm which is indispensable in an all round development of the bow arm.

Triplets in detaché

In playing triplets at a moderate speed give to the first note of each triplet, falling alternately on the up- and down stroke, about one-fourth of the bow length, to the two unaccented strokes a little less. This will procure not only greater ease for the whole bow movement but supply most naturally, that is without extra muscular exertion, the mild accent incumbent in the triplet rhythm. Near the point this greater stroke length of the first note of each triplet may also receive an additional slight weight-accent from the forefinger to fortify the rhythm. Even at greater speed when hand strokes are employed in the softer shades a slightly longer stroke for the first note together with a light accent should be given.

Particular care and separate study is required for de-

taché, involving a frequent crossing of strings. Most of the blurred effect of passages for detached strokes and legato (see next Chapter) is the direct result of an imperfect transition of the bow from one string to another. In view of the inexhaustible variety of cases of this nature only some general hints can be given.

Detaché and string crossing

As a rule, when the bow arm is engaged on one string, say the A, and the bow is to *cross for* one *single note* to either the D or E string, the *hand* is *chiefly instrumental* in effecting this transient visit to the neighboring string by lightly turning up and down, the forearm, at least for longer strokes, aiding the hand motion. For *more than one note* (on an adjoining string) the *forearm* from the elbow joint, distinctly, though unconsciously and still discreetly *follows* the *lead* of the *hand*.

Nearer the nut this aiding forearm movement will naturally be less emphatic than at the point, but in the former case the upper arm participates to some extent in it. Passages like the following ones, for instance, demand very careful, slow, analytical study lest the forearm and hand movement instead of working together and aiding each other are at odds in their movements and the effect of the strokes blurred.

Ex. 5. BACH (Praeludium).

Ex. 6.

As it is desirable in many instances of rapid string-transition that the *participation* of the *heavier parts* of the *arm* be *minimized* as much as possible, the upper arm and elbow joint assume best an easy middle position from where the more nimble hand from the wrist may readily reach the adjoining string by turning up and down. But even then the *forearm* should *ever* be *ready* to *assist* the hand in any direction by following its movement, be it only through a scarcely perceptible tremorous response.

There are indeed cases where not the hand but the forearm takes the lead altogether, but they are comparatively rare where the player commands a well-trained bow arm and, especially, flexible wrist. On the other hand much of the impotency, as I have mentioned before, of the bow arm can be traced to too exclusive, respectively comprehensive a use of the wrist and corresponding neglect of the aid of the forearm in crossing strings. Hand and wrist, the student should bear in mind, while the most nimble are also the weakest members of the bow arm organism and in consequence in constant need of help from their stronger partners. It should moreover be noticed that in using hand motion alone for string crossing the amount of hair touching the strings necessarily varies somewhat, this though negligible in the softer shades is not without damaging influence on the tone quality in many specific cases.

From a purely technical point of view it is especially beneficial to practice detaché, hand strokes and forearm strokes, as well as martelé, see Chapter VII, over two and more strings because it exercises simultaneously the muscles controlling the perpendicular (up and down)

hand-motion and those responsible for the sidewise stroke of the hand, respectively the forearm.

This has been recognized by Casorti in his bowing-studies and by Sevcik in his Op. 2, No. III and V, devoted chiefly to work of the bow over two and three strings.

CHAPTER VI

Legato-playing (slurring) — two principal rules — slurring over several strings — the mutual relation between hand and forearm in crossing strings — furthering a relatively low position of the elbow — another method of string transition — combinations of slurs and detached strokes, unaccented and accented.

More often than not detaché strokes of every description appear in connection with slurs, and this brings us to the consideration of an important side of bowing technics, *i.e.*, to what is commonly known as legato playing.

It bears a close relation to the cantabile stroke and all smoothly detached strokes, so much so that the latter, to distinguish them from other kinds of strokes, staccato and spiccato, etc., are often called legato strokes designating their outstanding characteristic. For theoretically the difference between the legato (smooth) detaché and legato pure and simple is only that in the former each note receives a separate stroke, in the latter several notes are played in the same stroke.

Two fundamental rules

From two to fifty notes and more may be played in one bow or slurred whether they lie on one string or are distributed over several. In either case two fundamental rules should guide the student in slurring under ordinary conditions, *i.e.*, without special dynamic effects.

1. The *action* of the *fingers* of the left hand must *not interfere* with, hamper or precipitate the *even flow* of tone.

2. The intended *stroke length* should be divided as accurately as possible in *proportion* to the *number* and *value* of the *notes* to be played in the *same stroke*. In other words, when six notes of equal value are to be taken in the same bow, let us say with the upper half, each of the six notes should receive approximately one-sixth of that upper half bow.

I cannot emphasize too strongly the far-reaching benefit to be derived from a careful observation of these rules, No. 2, especially. Aside from being foundational for perfect legato playing and cantabile, it is the key to much of the grace and charm we are wont to associate with truly artistic violin playing. Pupils, rarely appreciate and heed this careful bow division which, once acquired, becomes almost unconscious and automatic, a habit influencing not only his work with the bow but his whole method of practicing and through it the artistic output of all his efforts.

As I said, whether the slurred notes lie on the same string or on two, three or four, the principle of bow division is the same under normal dynamic conditions, but the difficulty of course is greater in legato playing over several strings.

As to the technical way of dealing with it, the variety of the problems that present themselves renders it impossible to give more than some general suggestions.

Legato playing over several strings

In many respects the attitude of the arm, wrist and hand in slurring several strings resembles that advised for playing detaché under the same conditions. The *hand* being the most agile and comparatively the lightest part of the arm, especially as to its perpendicular motion, it is *employed*

wherever its *perpendicular* motion (in connection with the vertical one) is *sufficient* to effect a *string crossing*, while the *preservation* of the correct *bow level* is more or less maintained by the *rest* of the *arm*.

In example 1, for instance, the arm and the bow would

Ex. 7.

lie in about the direction of the A string, the single notes on both D and E would be reached by a light up- and down turning of the hand from the wrist. At the same time, it ought to be noted that the forearm and elbow joint far from being kept immobile, *i.e.*, absolutely stationary during this more arduous work of the hand, aids it by almost imperceptibly following the hand motion. How much will largely depend, not so much on the looseness of the wrist as on the amount of bow to be used for slurring. The *greater* the bow length intended for *each* note, the more the *semi-vertical* or drawing movement of the hand will *predominate* over the purely *perpendicular* one with the consequence that the aid of the *forearm* also *becomes* proportionately *more indispensable* and *emphatic*.

The mutual relation between hand and forearm in string crossing

This explains the peculiar mutual relation between hand and forearm in the matter of crossing strings. Each helps the other and both adapt themselves to circumstances.

If it is a question of touching lightly a single note (or two) on an adjoining string higher or lower, hand motion alone will probably be quite adequate.

If the same note is to be played broadly, with expression, the forearm will unconsciously (automatically) go with, or maybe just follow, the hand in its direction.

For two or more notes on an adjoining string, even if they are only to be touched lightly, the forearm will likewise go with or follow the hand; whether at the same moment or subsequently, will depend again on circumstances, *i.e.*, the speed, character and sequence of the passage, etc.

It is to be observed that, as mentioned above under "Detaché," where perpendicular hand motion alone is employed for slurring adjoining strings the bow hair will come to lie alternately edgewise and a little more flatly on the strings. A continued edgewise position here could only be preserved by moving the forearm (elbow) too, simultaneously with the hand, which in rapid delicate slurring would be unpractical or impossible.

In such cases (Ex. 8) the arm with the bow should be

Ex. 8.

held almost in the position of playing the two strings together and the hand, more especially its ring finger side, made to describe the lightest of undulating motion to enable it to touch each string in turn. But even here, near the nut, the forearm in most cases may have to come a little to the rescue of the hand.

For developing looseness and flexibility of the wrist so much needed in these forms of slurring the exercises on thirds and sixths given in the supplement will prove

valuable. They may with advantage be practiced not only at the nut and point but at the middle as well as with the upper and lower half and the whole bow.

Ex. 9. Casorti

At the nut they are more exacting and beneficial through the enforced though discreet participation of the forearm (and if one will, upper arm) and because the perpendicular and vertical movements of the hand are about equally brought into play while the latter is subjected to the additional continued effort of balancing the top heavy stick and changing bow smoothly.

For the student to acquire facility in correct bow-division in crossing strings with a feeling for an exact proportioning of the vertical and perpendicular hand motion during the stroke (down and up) I can do no better than recommend the exercises given in my "Art of Bowing," and to some extent in the supplement to this work, that is, beginning with two notes slurred in one bow over two strings increase the number in progressive rhythmical order to three, four, six, eight, nine, twelve, sixteen and twenty-four notes. With many notes thus slurred lightly emphasize the bow divisions according to the beats in the bar by a scarcely perceptible accent of the forefinger thus:

Ex. 10.

Similarly the student may proceed with slurring notes over three and four strings as in Exs. 11 and 12:

Ex. 11.

Ex. 12.

In this case the arm (elbow) is best kept moving to and from the body between the A and D string levels while it is left to the hand, by down and up turning, to reach the two outer lying strings. I repeat that the *arm* is best kept moving, for while the movements of its heavier parts may be reduced to a comfortable minimum they should not be absolutely confined to any exact limit but be ever accommodating and helping the wrist and hand.

Furthering a "relatively" low position of the elbow

As a general rule, in order to *further* a *"relatively" low position* of the *elbow* under all circumstances, when *passing* from a *lower string* to a *higher* one let the *elbow lead, i.e.,* go a (very) little in advance of the hand; and *vice versa,* let the hand anticipate (antecede) slightly the arm in *crossing* from a *higher* to a *lower* string.

Finally, I wish to point out that hand motion as distinct from arm-movement by no means meets all cases of *crossing* strings although it is most generally employed. A passage like the following:

Ex. 13.

may be executed with a loose wrist and the hand more or less effecting the transition to the various strings with the rest of the arm following and aiding.

Another method of string transition

But it may also be played with the forearm, *wrist and hand* together *forming one* composite one to operate the stroke movement over the strings.

The control (power) over the bow in this case will, if anything, be found greater and the transition of the strings can be effected with less expenditure of bow length in *Forte* as well as *piano*. In the latter instance the fact, that by moving forearm and hand together the bow hair can retain for all strings its edgewise position, will prove additional gain in delicacy. The string crossing movement of the arm must of course be carefully accommodated to the nature of the passage, *i.e.*, the arm may have to linger in the direction of one string longer than in that of another according to the number of notes on each.

The experienced artist knows how and when to avail himself of either method of string crossing.

The second mentioned (forearm) method is naturally more suitable for the lower bow half, near the point and for the lower strings it would necessitate an uncomfortably high position of the elbow which is not recommendable.

For certain forms of slurred arpeggios, however, as in

Ex. 14.

it is almost entirely employed, except perhaps at the point.

The slurs in this and similar cases represent simply so many smooth down and upstrokes executed circularly over the several strings instead of vertically on one, the wrist and hand, though kept loose and active, are not individually responsible agents. Only for changing bow the hand asserts its independence from the rest of the arm. To use it more or less independently and stroke-defining for crossing would militate against the smoothness and continuity of the slur.

Combinations of slurs and detached strokes

Combinations of slurs and detached strokes underly on the whole the same general principles of execution as the former, at all events with regard to the employment of the hand and forearm, individually or combinedly. A careful bow division taking into account the speed and dynamic quality of a passage will be as essential here as in other forms of bowing. It will also suggest to the thoughtful player whether and when he is to use hand strokes or forearm strokes in connection with slurs.

Generally speaking, *i.e.*, except for some special reason to the contrary, as in Ex. 15:

Ex. 15.

the *slur* should *receive more bow* than the *detached* strokes *connecting it.* This "more" may only be a very little, the half of an inch, or it may be very much; but even when economy of movement, speed or greater technical convenience do not enter into consideration a greater bow expenditure on the slur as compared to the detached strokes (Ex. 16) will invest a passage so executed with a

Ex. 16.

certain rhythmical precision, style and charm both articulate and visible, which can be duly appreciated only by comparison with the same passage played otherwise. The difference is, as in speech, that between the phrasing and articulation of a sentence in one instance charming us and in another failing to do so.

This *general rule applies still more markedly to all accentuated slurs* as in this case the prepondering bow length causing more vigorous vibrations of the string is a more satisfactory (tonal) means for emphasis than direct pressure on the bow (compare Chapter XIII).

Where the slur does not exceed one-third or one-fourth of the bow and the tone shade is more or less delicate, hand strokes for the detaché will usually be preferable; but this is, of course, meant as a general guide for practical application not for purposes of study.

CHAPTER VII

Martelé and Staccato bowings — their importance — three attributes — a determining factor in their execution — martelé at different parts of the bow — the right start — the nature of the stroke — variations in tone and variations in pressure — method of practicing martelé — modifications — the dotted eighth and sixteenth rhythm — the Viotti stroke — other modifications — *le grand detaché.*

While smoothness, breadth or sustained delicacy were the outstanding features of the detaché in its various forms, those of the family of bowings to which we come next are the very opposite to these qualities.

In the violinistic nomenclature they go under the name of Staccato or also Martelé strokes. *Staccato* means literally *violently detached,* torn off; *martelé, hammered,* the two expressions although not exactly synonymous convey about the same idea, that is the opposite of smooth and singing.

If we think of the violin in the first place as pre-eminently a singing instrument, a rival of the human voice the *raison d'être* of bowings of that description may seem questionable. The fact, however, is that the superb versatility of the violin as a medium of expression, has made these bowings scarcely less widely employed, and in consequence less indispensable to the violinist, while from a *purely technical point* of view their *importance cannot be over-estimated.* Why?

Let us first examine more closely the character of what we call a *staccato stroke.* Such a stroke to have all its

attributes must *start crisply;* the bow must, metaphorically speaking, grip the *string*, *bite* it. It must be, *secondly*, *decisive* in its *course*, quick, elastic and, *thirdly*, come to a *sudden* cessation, whereby the *vibration* of the strings *cease completely*, causing a pause, a hiatus, a musical question sign.

Three attributes

These being the characteristics of the *bona fide* staccato or martelé stroke, if we come to their execution we find that the largely determining factor is the part of the bow employed. It is once more the varying bow weight and to a lesser degree the position of the arm, the greater or lesser coöperation of the upper arm, etc., which impose their conditions.

Speaking first of the *firm start* at and near the *nut:* the weight of the bow if allowed to come into play (which must be of first consideration for the student) more than amply suffices to secure this start. It is a feature difficult of explanation but once heard and understood will be recognized at once as appertaining to this particular kind of stroke. It is not rough, or necessarily loud to show its character. The difference between the start of a delicate martelé and that of a detaché stroke is about that between the effect of the vowel "O" as pronounced short as in "often" or long with an aspirate preceding it as in "hose."

This start once properly comprehended and rightly executed at the nut will serve as a tonal pattern for any similar effort at other parts of the bow and it can also be easily modified with respect to different tone shades. In *piano* the hand (wrist) by turning the bow hair very much edgewise may alleviate more or less the natural bow weight; in *forte* the weight of the hand or a portion of it can be allowed to

The right start

exert itself and be added to, at will (for the loudest shades) by a little pressure of the forefinger and thumb, or also forefinger, ring finger and thumb.

Let it be understood, this *start*, whether it be soft or loud, must *never* appear, or be in any way considered as *apart from the stroke itself* which follows immediately. The two, start and stroke, form one just as in the smooth detaché, it matters not whether the stroke is only the length of a centimetre or covers two-thirds of the bow. It, therefore, should also not be stronger than its continuation.

The nature of the stroke

The *stroke* then, as the natural continuation of this start should resemble the straight rapid course of an arrow shot from a tightened bow string, not necessarily loud but unmistakably *decisive, elastic,* short (elasticity may be said to be its chief feature as felt in the hand).

At the *nut* this stroke-characteristic is easily obtained if one imagines the bow simply a light weight which one pulls or pushes rapidly and then suddenly stops. By way of an experiment let the student hold the bow with but two fingers, thumb and ring finger, or with the addition of the little finger lightly touching, and rapidly pull the stick, thus gently weighing on the A string, two or three inches and stop. The effect obtained will give a good idea of what a *bona fide* martelé stroke should be and sound like.

Variations in tone are procured by *modifications of pressure* as above mentioned and *length of stroke.* Likewise is great speed not an incumbent factor (see later). It is only recommended here as a means of bringing home a general principle of execution. For a *short stroke,* that is, not longer than from one inch to one and a half the

hand alone by being projected forward from the wrist may be employed; for *longer strokes* the coöperation of the *forearm*, of course, in connection (at that part of the bow, the nut) with the upper arm is necessary. But whether done from the hand with a loose wrist or with the help of the forearm the attitude of the *muscles* engaged in the production of the stroke should be, before all, *elastic, springy.*

Martelé strokes at the *middle* in order to show the same characteristics in respect to start and stroke as those executed at the nut, will be felt to require a certain amount of, it can hardly be called pressure on the stick, but that which just about separates it from the relaxed conditions of the muscles prevailing (except in louder shades) at the nut, *i.e.*, a certain, I will call it — *sustaining attitude* of the *muscles* of the *hand* and *wrist* which *prevents start* and *stroke* from becoming *too light.* The quality of the bow, however, has much to do with this (*sustaining attitude*); a heavy stick scarcely requires it, a very light one does. I speak here of short strokes projected from the hand. For longer ones done with the aid of the forearm a certain weight on the stick supplied by the forefinger, firstly, and hand, secondly, especially for the lighter upstroke is necessary to secure a steady round stroke and yet thoroughly martelé in character.

Near the *point*, owing to the light bow weight, a *distinct pressure* on the stick becomes *indispensable* and the execution of the stroke altogether more difficult. Without long and careful training of the muscles of forefinger and thumb it is rarely mastered. A pupil with a naturally heavy, lethargic arm sometimes obtains without apparent effort and practice a stroke which has the semblance of a mar-

telé, but it is not the *bona fide* stroke; it lacks the elastic, springy and yet carrying quality of the latter.

Too short a stroke, *i.e.*, one from the hand alone is here (at the point) rarely to be recommended. The tone obtained in that way is in *piano* either too thin and featureless or in *forte* hard and dry especially on the E string where it becomes worse the higher the notes.

The pressure of the forefinger, moderate generally and very slight in piano, which is necessary to secure the firm start, should be carefully tempered by counter pressure from the thumb. It is a light transient pinching of the stick with these two fingers and a simultaneous quick drawing motion that brings about the desired effect. The wrist aids the hand and the forearm aids the wrist. The down bow stroke is apt to be heavier than the up-stroke one; this, a fault, is best overcome by letting the pulse beat of the bar fall on the upstroke or also by playing triplets.

Method of practicing martelé

Commence with *short strokes* at the *nut.* If the wrist bands require loosening there is no better means; but aside from this the danger of interfering nerve impulses or the participation of undesirable muscles being here least, the true character of the stroke can be best brought out if the student has learned to balance this bow perfectly and uses its natural or alleviated weight for the start. Above all let him be reminded of the law of *muscular relaxation.* The more energetically he has projected his hand from the wrist or moved his forearm for the stroke, the greater the need of a pause following, and in proportion to the muscles being untrained, weak, the pause should be made long. An exercise as in Ex. 17,

Ex. 17.

ought to be played in the beginning as follows:

Ex. 18.

Ex. 19.

Where there is a *change* of *string* bring the *bow immediately* after the *expiration* of the *last note* into the *new string direction* so that the arm, etc., gets ready for the following stroke during the pause.

The necessity of a pause after each stroke

But there is another reason for a long pause. The student will observe that after an energetic stroke there is always more or less *recoil*, a reflex action. This recoil is felt in the hand and wrist, and the looser both are the greater it is. For this reason martelé strokes of no great length are often with advantage executed with the wrist held rather stiffly, that is, with the hand less independent from the forearm than is usually recommended. This practically obliterates all reflex action; forearm, wrist and hand in this case form, as it were, an inseparable whole which operates on a line (at least for longer strokes at the point) not altogether parallel with the bridge but through the decision of its movement may produce strokes very clear-cut, hammer-like, and free of side noises and jerks. A beginner with a stiff wrist has sometimes in this particu-

lar kind of stroke an advantage over the player with a loose one, certainly over one who tries to use the wrist too exclusively.

I should like to repeat the necessity of a rest after each stroke in first martelé practice, not only for the sake of the above reason and to allow the muscles involved in the firm start and rapid vigorous stroke a momentary chance to recuperate, but the very character of the martelé hinges on the pause. Its obliteration alters this character, mars or modifies it.

It is also these separating *pauses* which naturally *limit* the speed at which *martelé* strokes can be executed with any sort of neatness and perfection. A speed as in the smooth detaché is quite impossible. In order to partly overcome this if one will, limitation and restricted application of the martelé pure and simple and also for musical ends many modifications of the *bona fide* stroke are employed.

Modifications

They are made possible through the elimination of one or the other of the three characteristic features of the *bona fide* stroke, namely, start, stroke and finish.

Most often it is the firm start which is omitted or, to be more precise, is replaced by a device which need not impair the following rapid stroke and define it as staccato. (I use here the word staccato purposely for the stroke in this case ceases to be hammered; it is only short and followed by a rest.)

Modified martelé or staccato strokes comprise a very large group of bowings especially in connection with other bowing styles, slurs, etc., and their study is of the greatest import to the violinist.

Modified martelé strokes

In the following example (20), the modified stroke is marked with an asterisk. Why should it be modified? It is not speed here which necessitates the modification, that is, the obliteration of the firm start. It is for the purely musical reason that the smoothness (full value) of the preceding detaché stroke must not be in any way impaired, *i.e.*, the latter be cut short or separated by the shortest pause or hesitation from the following staccato stroke but should melt into it. A firm start for this stroke would cause an infinitesimal stop, no matter how cleverly executed.

Semi- or modified staccato

In cases then where a *martelé* stroke follows a *smooth* one, the *firm* biting *start* is *generally omitted* and a staccato effect secured by changing bow rapidly (through the flexibility of the wrist, and finger joints) and then bringing it, martelé fashion, to a sudden stop with a pause following. Whether these smooth strokes are long or short does not matter, essentially the mode of execution and the tonal effect are the same. In the following examples, for instance, the strokes marked * * * come under this head of *semi-* or *modified staccato.*

Ex. 20.

Ex. 21.

Ex. 22.

Ex. 23.

Ex. 24.

Ex. 25.

Ex. 26.

Ex. 27.

Its application is practically unlimited, much more general, indeed, than that of the *bona fide* martelé.

Almost the sole difficulty their execution presents is the light, quick change of bow, *i.e.*, the ability of the wrist, hand and finger joints to change their attitude towards the stick or their activity with respect to it at any moment.

In many instances, especially in combinations with slurs, as in Exs. 24–27, the border line between such modified or semi-staccato strokes and detaché strokes is slight, the difference consisting only in a greater energy of the bow movement and a subsequent momentary cessation, or seeming cessation, of the string's vibration, or if not that, at least an infinitesimally short break in the continuity of tone which must be regarded as a pause.

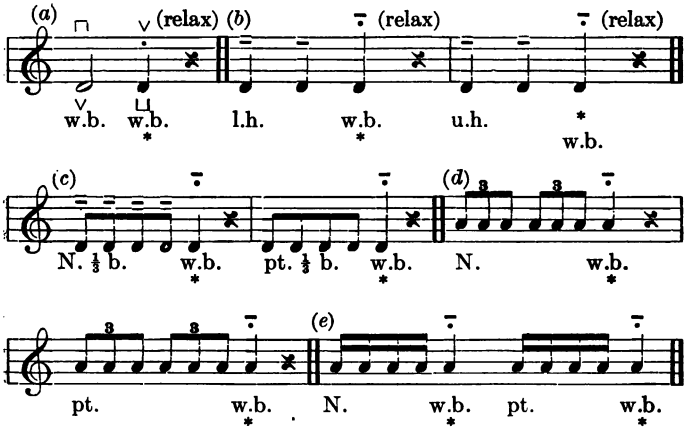
How much bow is to be used in such and similar cases, how much pressure from the forefinger and thumb is needed to make the bow adhere to the string, and how much of a simultaneous impulse (push) from the ring finger side of the hand for the upstroke, how in fact to deal with one and each of these modified staccato strokes is a matter of long experience and sometimes intuitive knowledge.

To develop muscular alertness

The following exercises are recommended for developing the muscular alertness, responsiveness and swiftness of action so often required of both the wrist and finger joints (grip of the

bow) for the proper rendering of strokes of this description, whether the difficulty lies in the suddenness of changing bow or the rapidity of the stroke movement or, in immediately after exertion, relaxing certain muscles completely while others may be only partially relaxed.

Ex. 28.



Draw the bow in example (a) slowly, its weight evenly sustained (*mf*) from the point to the nut, or, from the nut to the point and then, suddenly but without roughness or a jerk, or the least break in the flow of tone, change bow (with a loose wrist) and draw it, full length, as swiftly as possible in the opposite direction. On arriving at the other end bring the bow and with it the vibrations of the string to a sudden stop by tightening the grip, immediately relax all the muscles of arm and hand and keep them relaxed during the pause which should be strictly observed.

The rapid stroke stands for a modified staccato stroke. Its course must not be impeded by any premature tightening of the grip and the tone quality should not differ materially from that of the preceding slow stroke.

Until the muscular apparatus has become accustomed to the rapidity of the movement it had better not be made quite so fast.

In Exs. (b), (c), (d) and (e), the mode of execution is essentially the same: for the slow whole bow strokes stand in (b), two leisurely drawn smooth half bow strokes; in (c), four forearm detaché strokes ($\frac{1}{3}$ bow); in (d), triplets ($\frac{1}{4}$ bow); in (e), hand strokes alternating in each case at the nut and point.

These exercises, for which we are indebted to the ingenuity of O. Sevcik (in his Op. 2, No. 1), should be practiced diligently on scales. I know few as valuable in their way, more particularly where the wrist is inclined to be stiff or where the arm is lifeless and the grip of the bow too loose and uncertain.

The dotted eighths and sixteenths rhythm

A similar kind of modified staccato strokes are also employed in the execution of the well-known rhythm of *dotted eighths* and *sixteenth notes*, which is as frequently met with as its study is beneficial. At the *nut* the rendition of Ex. 29, differs little from that of Ex. 30; the strokes are

Ex. 29.

Ex. 30.

simply reduced in duration (not necessarily length) and the pauses proportionately lengthened with the result that

Ex. 29 sounds as though it were written, as in Ex. 31, *i. e.*, with not the least break between the two sixteenth strokes. It is here where the modification of the second one through suppressing its firm start comes in. The hand (finger joints

Ex. 31.

flexible) from a loose wrist is mostly instrumental in bringing about the close connection of the two strokes.

Further up the bow (I speak of the rhythm where the sixteenth note falls on the upstroke) this sixteenth may also be executed with the hand (with a loose wrist) and often this is done, but owing to the lighter bow weight and the incumbent pressure on the stick, to counteract it, a slight coöperation of the forearm for the stroke is as a rule more satisfactory and in consequence the muscular impulse is felt to proceed more or less from the elbow joint (without the elbow moving) and is carried to the wrist, hand and finger joints.

The higher up to the *point* the more this is the case, although as I said, the hand alone may execute the sixteenth stroke, at least in *p*.

The tone shade in which this rhythm is to be produced has, indeed, very much to do with the mode of procedure. In *forte* the *coöperation* of the *forearm* will mostly be deemed necessary, in (*p*), less or not at all.

Where the *sixteenth* note is played with the down bow which is seldom at the lower half and mostly near the *point*, the same rule holds good; the sensation in (*p*), is then not unlike that of slightly pulling a piece of strong

elastic and letting it slip back. The forefinger and thumb just pinch and pull the stick down a little; the upstroke represents the relaxation or recoil. In other words, the bow being pulled a very short distance down by the hand with a loose wrist is allowed, as it were, of itself to return to the starting point.

In *forte* the forearm assists the wrist and the recoil, if so it may be called, is more in the nature of a return push. In either case the upstroke is modified or semi-staccato, *i.e.*, its firm start is suppressed but the rest following it, however short it sometimes may be, suggests its staccato character.

The Viotti stroke

In the *Viotti-stroke*, as it is termed, we have a similar form of modification. It is produced by a strongly accented stroke alternating with an unaccented one in the same bow. In this case the former presents all the *bona fide* martelé features, the latter the modification in that the stroke is smoothly connected with its strongly accented partner, but, as distinguished from a smooth detaché stroke, immediately stopped and separated from the next accented stroke-part by a pause.

The effect of this style of bowing is enhanced and its playableness at a considerable speed rendered possible by reducing the length of the unaccented (modified) stroke to a mere fraction of that of the accented one, so that the latter stands out boldly.

Ex. 32.

Other modifications

By *shortening* the *pause* after the *stroke without completely eliminating* it and thus keeping up a certain reduced vibration of the string a relative *increase* of *speed* may be attained while the general character of the stroke, as compared to the smooth detaché, can still be retained.

"Le grand detaché"

The style of bowing, which the French call "*le grand detaché,*" is of this class. It is, I think, a bowing style characteristic of the French and Franco-Belgian School.

Baillot, in his "Method du Violon," gives the following rules for practicing it:

"1. Attaquez la corde en tirant (attack the string in the down bow).
2. Avec un peu d'appui (with some firmness).
3. Loin du chevalet (away from the bridge).
4. Très vivement (very lively).
5. Ne faîtes entendre qu'un seul coup (let only one stroke be heard).
6. Arrêtez l'archet tout court (arrest the bow suddenly).
7. Laissez-le sans force sur la corde (leave it on the string without force).
8. Faîtes de méme en poussant (do the same in the up-stroke).

NOTE: Etendre plus ou moins l'archet selon le mouvement" (lengthen more or less the amount of bow according to the tempo).

I may add to this clear and to-the-point explanation that the matter is somewhat more complicated than it appears from Baillot's description. In the first place the upper arm, not mentioned, enters prominently into operation as soon as the strokes are longer. Indeed, as the

whole bow length is often employed for "*le grand detaché*" it might with good reason be called an upper arm stroke with the forearm, wrist, hand, forefinger and thumb as collaborators. For the whole arm and hand is put to work to produce the desired effect. Even if executed with very short strokes in order to increase the speed (best a little below the point and at all events not below the middle) the whole arm from the shoulder down is more or less involved.

The rolled wrist stroke

One might then call this bowing style with some justification the *rolled-wrist stroke* for it is a kind of rolling or wriggling motion of the wrist and forearm with the bow remaining practically in the same spot, by which a hammer-like effect is obtained.

Instead of alternately pressing the stick between forefinger and thumb for the down and up bow start and allowing the arm and the elasticity of the bow, free vent to complete the stroke movement, these down and up bow starts become here an almost unrelieved quick succession of strong accents produced, indeed, by the forefinger and thumb (and wrist) in the first place, but aided by, and felt in every part of the arm. As soon as with diminished speed the *stroke* can be made *longer* the conditions for the "*grand detaché*" referred to by Baillot may prevail again for the reason that a *certain amount of muscular relaxation* between the *strokes* can set in even with the shortest of pauses, while at (comparatively) greater speed this is virtually impossible.

We find thus again speed, tone quality and location of the stroke to be influencing or determining factors, apart from any intended special effect. If a passage, in a

moderate tempo is to be played broadly detached with a determined emphasis on each note employ the *grand detaché* a little above the middle, for martelé might sound too dry and hard, and detaché not firm enough. If a passage is too fast for this bowing style to be brought out properly, use the rolled-wrist stroke, that is, a derivation from, or a blend between the grand detaché and *bona fide* martelé at the point.

The start in either case is a little less crisp and firm.

Near the nut as a matter of course the rolled stroke is impossible; it is, therefore, if the need arises replaced by a modification of the Fouhetté or whipped bow, the *picchietato* for which the bow is raised off the string (see Chapter IX).

CHAPTER VIII

The firm (tied) staccato — two kinds — method of study — the activity of the forefinger — the forearm — with a stiffened arm — the staccato with the down bow.

The firm (tied) staccato

The firm (tied) staccato, as it is commonly called in the violinistic vocabulary, is to all intents a succession of martelé strokes in one bow. But its execution is subject to certain special conditions which make a mastery of this, perhaps the most brilliant of all bowing styles — a feat difficult of attainment.

It is the one form of martelé where, without modifying any of its characteristics, an almost unlimited speed is possible. But it is this speed, at least if brought under control, which presents the difficulty, and it is here that these special conditions make themselves embarrassingly felt, so much so, that the possession of a brilliant reliable staccato has come to be regarded as a special, rare gift.

There is, indeed, no denying the fact, that some individuals have a natural predisposition for acquiring it and learn it without apparent effort or prolonged study, while others, not so fortunate, experience a life long struggle over it.

Two kinds of firm staccato

I may mention here a fact which is often overlooked, namely, that there are two kinds of firm staccato, one different from the other in effect and in mode of execution. Both may be acquired

by study but for one more than the other a natural favorable disposition of the hand is almost a *sine qua non* and it is rarely learned in later life. In this one the hand and wrist are the prime factors, in the other the forearm.

With elbow relaxed

In the *first kind*, while the *elbow* remains *relaxed* and the forearm only in a very slight state of tensiòn, the *hand*, by describing the shortest of turning motions (from the right side to the left) almost like the light fluttering of a wing, *pushes* the *bow forward* by means of little strokelets, each representing one turn of the hand and each distinct and separate from the following one by an infinitesimal pause. There are one or two more factors which enter in the production of this staccato to which I shall refer presently, but of which the player possessed of it is scarcely conscious.

It is the staccato *par excellence* and the proverbial one credited to some of the great players of the past, de Bériot, Vieuxtemps, Sivori, Léonard, Laub and others of modern times. I omit Wieniawski for his staccato, scarcely less perfect and effective in its way, was of the second kind. It was for one thing, less elegant, less elastic; it was, if one might say, like polished steel compared to ivory.

The forearm the chief factor

In the execution of this, the *second* kind of staccato, the hand, is only secondarily concerned and the *chief factor* is the *forearm* while the elbow and shoulder enter into a sort of partnership.

The bow is made to produce the small strokelets not so much by the light turning movements of the hands as by stiffish little *pushes* from the forearm with the *forefinger* and *thumb* acting like a *brake* to make the bow hair adhere

to the string. The elbow and shoulder assume a state of tension. The hand (turning) movements enter only into play with an approach to the bow middle and below it when the increasing bow weight begins to release the stiffish pressure of the forefinger and thumb necessary before. The whole procedure of the bow at the upper half may be said to resemble more that of a car on cog-wheels going up a steep hill; from about the middle on it again differs little from the one first explained.

The physiological aspect

Physiologically the difference in the execution between the two kinds of *staccato* consists in the faculty, in the one instance, or the lack of it in the other, of transmitting the primary nerve impulses which effect the rotatory forearm motion to ultimate ends, *i.e.*, certain muscles of the wrist and hand causing them to operate at the same ratio of speed without the interference of other undesirable muscles. In other words, in the ability, physical and nervous, or the lack of it to communicate in their integrity through the wrist to the ring finger side of the hand the rapid rotatory movements of the forearm in the elbow socket while not only the muscles of the forefinger and thumb act simultaneously as a brake resisting them, but the forearm moves also slowly in the vertical direction of the string.

It is here where the inherent or early acquired talent, or let us rather call it predisposition for staccato scores over any attempt at mastering it later and through the ordinary channels of intelligent study.

This may sound discouraging to a degree but it need not deter the student from making a fair bid for the possession of this valuable asset in his technical equipment.

Wieniawski staccato

It is a scarcely known fact that Wieniawski, admired for his staccato in later years, lacked it in his earlier ones and deeply deplored this deficiency without being able to remedy it, until one day it occurred to him like an inspiration to execute the staccato not according to the traditional method which had proved futile, but in a new way, *i.e.*, with a stiffened arm.

It may be surmised that by this was understood the second kind of staccato explained above, the cogwheel method, or whatever one wishes to call it.

The success in his case at all events was astonishing to himself as to others.

I would, however, not advise a student to try Wieniawski's method until the older, traditional one has persistently failed. I say "persistently" for here before everything else it is patience which may lead to success even in comparatively later years, when wrong nerve associations and their dire consequences have usually become too firmly established to be eradicated.

Method of study

In as much as the chief obstacle in the way of rapid staccato playing is not the characteristic little rotatory movements of the hand *per se* (for almost anybody can execute them without the bow) but these same movements in connection with other simultaneous, *viz.*, muscular, activities and partly opposing ones, namely, those of the forearm and the forefinger and thumb, the student is advised to *begin* his *study* at that part of the bow where these accessory movements or muscular activities are least felt as an impediment to the other (rotatory) motion. This is the bow *middle*. The weight of the stick here being just

sufficient to effect a firm start for each strokelet without more than a very faint sustaining effort of the forefinger, the first great advantage is gained.

At the bow middle

The second lies in the comfortable position of the elbow and forearm in relation to the wrist and hand, etc., in playing with that part of the bow as compared to the point and in the non-participation of the upper arm in the bow movement.

With these two factors then in favor of the middle, instead of the point where commonly the staccato practice is essayed, the student should commence with three notes in one bow. With the mind concentrated on the *hand*

Ex. 33.

(more especially the ring finger side) he should articulate sharply (mp) but not too violently the three martelé strokelets by the familiar little turning movements of the former without drawing the bow to any appreciable degree except for the last of the strokelets for which the rotatory hand motion is accompanied by a vigorous push of the forearm carrying the bow some distance towards the nut.

During the duration of the three strokelets the *forefinger* with the *thumb* exercises a *very slight sustaining* effort on the stick which is only relieved *after* the *last push* of the *forearm* when with the pause *complete relaxation* sets in after the rest, and the bow is quietly drawn back to the starting point for a repetition of the same proceeding.

Such groups of three staccato notes having thus been practiced at the bow middle and a little below it, they should be tried an inch or two higher up, the upper third being for the present omitted. These daily practices should be carried on for a week or longer without any attempt at playing fast or increasing the number of notes.

The purpose of the exercise is to establish first of all correct nerve impulses and associations and to transfer these to the right muscles concerned in the execution of the staccato and at the right relative ratio of strength required of them.

The next step

The *next step* is in the *addition* of *one note*, *i.e.*, one little strokelet to the three, beginning again at the middle and gradually working towards the point. Some further explanations, however, had better precede these attempts for the safer guidance of the student.

The activity of the forefinger

With regard to the activity of the forefinger and thumb, I think, much of the futility of the usual staccato practice at the point results from a too complete relaxation of the muscles of these fingers after each little staccato (martelé) strokelet.

While this works well enough in a slow staccato it is fatal in a quick succession of many notes, for in this case the player driven to speed and unable to re-energize sufficiently the too relaxed muscles, first concerned and weakest in the infinitesimally short rest separating the strokelets, finds presently his whole muscular apparatus seized by rigidity. First the wrist stiffens because most closely connected with the muscles of the forefinger and thumb, and then the rest of the arm.

This is to a large degree avoided when the *muscles* of

the forefinger and thumb are kept at a very slight tension in which re-energization can easily follow any partial relaxation; in other words, when the forefinger maintains a continuous, subtle, brake-like hold on the stick under the stronger propelling (supinatory) force of the rest of the hand, wrist and forearm.

Spohr's remarks on staccato practice

Spohr's remarks on the staccato and its practice as given in his "Violin Method" are of interest in this connection. After commenting on the belief which he shares that the gift for staccato playing is, so to say, inborn, he says: "The staccato is done in the upstroke with the upper half of the bow, beyond which one must not go even if there were thirty-two notes and more to be played in the same stroke. One should, therefore, accustom oneself from the beginning to use as little bow as possible, *i.e.*, only so much as is absolutely necessary for a clear articulation of the tones. The bow movement (pushing up) is produced by the wrist alone, forearm and upper arm remaining quiet. Each note receives through the forefinger of the right hand so much pressure that the whole breadth of the bow hair lays itself on the string. To separate the tones the bow raises itself a little after each push but not to such an extent that the edge of the hair would rise above the string.

The beauty of the staccato consists chiefly in an even, distinct crisp separation of the tones in the strictest tempo. It should be practiced very slowly at first and only when the pupil has succeeded in doing it so clearly and in time, he may gradually increase his tempo.

Bearing on the activity of the forefinger, Spohr in his remarks, "that for each note, *i.e.*, strokelet, the pressure

of the finger should cause the bow hair to lay itself flat on the string," evidently forgets that not every violin student is over six feet in his stockings and blessed with a hand and wrist of abnormal proportions and strength such as he himself had, or he could not have given an advice so contrary to experience and so fatal in results for the average pupil; but his subsequent remark that, "to separate the tones the bow should raise itself a little after each push but not so much that the edge of the hair would rise above the string" seems to indicate the advisability as urged by Spohr, of only a partial relaxation of the muscles of this finger instead of a complete one, even in a slow tempo.

The attitude of the forearm

As for the *attitude* of the *forearm* to which I now come, this great master's injunction "to push the bow by the wrist alone and keep the arm quiet," is not borne out by facts. On the contrary, if more than two or three strokelets are to be executed in one bow, *i.e.*, as soon as the hand, to speak with Spohr, "the wrist," ceases to be able to project the strokelets by itself, the forearm enters prominently into operation. It is, therefore, surprising that just this, the most important factor in the execution of a brilliant staccato, should be so often left entirely out of reckoning.

In some of the older Methods we only find the recommendation to give a strong accent on the last note of a staccato run.

This suggests to some degree the peculiar attitude of the forearm but does not explain it sufficiently to be of real service to the student.

Why an accent on the last note?

The *forearm* should move with a *certain stiffish decision*

but *slowly* in the *direction* of the *string* on which the staccato is intended, thus representing an effort to gather into one martelé stroke all the little strokelets of which the staccato run is composed of or partitioned into.

To be able to do this — which in reality is nothing else than executing a number of light supinations of the hand while one extended rotatory movement of the forearm in the elbow socket is in progress, the forearm (and as far as it depends on the upper arm, the latter too) must move, as I said, slowly in a vertical direction as the hand executes its fast propelling turning movements.

This induces a state of mild muscular tension or forced suspense during the duration of the staccato run, long or short, which ends with the last note when the stored unconscious natural energy of the forearm movement is allowed free vent.

The *accent* recommended is, therefore, broadly speaking, this emphatic final getting free from a state of tension. Now if this tension of the muscles is permitted to become too great it turns into strain and thence rigidity, and the staccato run is spoiled, usually long before the last note is reached.

Natural predisposition

The individual with a natural predisposition for staccato playing is scarcely cognizant of any such muscular tension. Likewise he who has acquired the facility in early childhood, the muscles in their slow, logical progressive development having here retained the necessary elasticity to withstand any temporary, greater or lesser strain, like a fine spring of steel.

The less fortunate older student has, as it were, to proceed once more through a slow childhood's process of

developing the muscles in the right direction, gradually increasing the number of notes in one bow, and with each, his power, until, in the course of weeks, or maybe months, he has brought his muscular apparatus to a state of elastic strength where any temporary strain is no longer felt, or if felt, does not endanger its efficiency. I should mention that the greater or lesser firmness (crispness) of the staccato depends of course on a corresponding firmer or lighter resisting pressure of the forefinger and thumb on the stick for each strokelet, and this again for the most part on the condition of the *wrist*, its greater or lesser strength.

Firm and light staccato

Spohr's staccato, by reason of this master's peculiar physical idiosyncracy was distinguished by a more than ordinary firmness and this doubtless gave rise to the belief often expressed that the so-called Spohr staccato required a different method of execution than the lighter French style. This is not the case, although the difference in effect between the two may, indeed, be very marked.

The most desirable thing should be to excel in both the very firm and the lighter kind of staccato, so as to be able to use either kind according to the nature of the composition, but this being a comparatively rare attainment, the student may have to be satisfied with acquiring the staccato best suited to his physical individuality, so long as it is masterly in its way.

Method of practicing continued

But to return to the method of practicing: To develop a proper coöperation of the forearm which, as I said, becomes necessary as soon as more than three notes are being executed in one bow, the student should in his *next task*, a *group* of *four*

notes, concentrate not so much on the hand as independent of the forearm, as before, but on the forearm and elbow

Ex. 34.

joint. *Starting* again at the *middle* and sustaining the tone with the forefinger he should push or *propel* the bow in four *rather stiffish little forward jerks, i.e.*, give four distinct nerve impulses (transmitted) to the forearm, as though it formed one with wrist and hand.

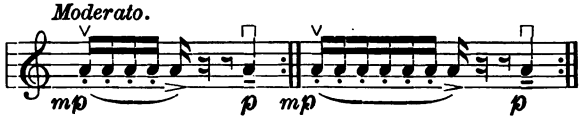
The *wrist* need *not* be *stiff* on this account, but the purely rotatory hand motion, so much *in evidence* in the previous exercise (with three notes), should, for the time, be lost sight of or be treated as secondary to the movement, as a whole, of the forearm.

The last of the strokelet may again be accompanied by a more energetic push with a larger expenditure of bow length. A *relaxatory* pause *must follow* the staccato group after which the bow is quietly drawn back to the starting point (a little above the middle).

Subsequently groups of 5–7, 9 and 13 notes may progressively be taken up as in Ex. 35.

Ex. 35.

Moderato.



Here, by compressing in each case the amount of bow for each strokelet, except the last one, to a minimum, as it were, and keeping the wrist flexible, the rotatory hand

motion (supination of the ring finger side) should again come to the fore, that is, the student should have the feeling as though he shook the strokelets from the wrist while the forearm moves rather stiffly as before. In many instances it will be a great *help* to *strongly bend* out the *wrist* during the staccato. This, without raising the elbow, turns the bow *hair* so that it grips the string more with the *extreme edge* which renders the brake-like effort of the forefinger proportionately easier.

It is sometimes of advantage when the staccato comprises many notes to employ the middle and ring finger (and even the little finger) by bending them and stretching them in the joints to assist the hand and arm in pushing and also to keep the forefinger a trifle more stretched (not quite so curved around the stick).

These *exercises* on groups of 5, 7, 9 and later 13 and 17 notes in one bow should progressively be pursued at and *near* (above) the *middle* for a *long time*, before any attempt is made to execute them near the point.

It is here, as I stated before, where the attitude of the forefinger, *i.e.*, a greater strain on its strength (and that of the wrist), as well as the more elongated position of the hand and the different one of the wrist as compared to the forearm, militate against a ready mastery over this bowing style at any appreciable speed.

The preceding practices, however, if intelligently and persistently done, should have prepared the pupil to successfully deal with these new conditions. They should have taught him to employ for each part of the bow just the amount of pressure of the forefinger necessary to act as a brake without straining the hand and wrist beyond what they can stand.

At the point The latter will now, at the *point*, best be held relatively low (a little bent in), and the *large knuckles* of the fingers well *bent out* which lends greater strength to them. Further slight differences and modifications on the proceeding at the point as compared to the bow middle are more or less individual and must be found out and dealt with, by each student.

The shape of the hand and length of the arm have a great deal to do with these. A pupil with a long arm will be compelled to do a little more wrist-bending and stretching than the one with a short arm and be at some advantage here but his staccato, when mastered, may on this account sound more polished and elegant.

All the exercises in groups of more than four notes should be practiced at the bow middle, etc., on scales

Ex. 36.

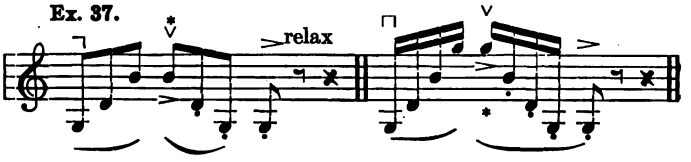
first, by starting with a firm grip of the string as suggested in the previous examples and second, as in Ex. 36, *i.e.*, with the first staccato note in the upstroke, "modified."

In this case, draw the bow down vigorously for the first note, changing bow rapidly and suppress the firm start of the following sixteenth strokelet; the next one only is a *bona fide* staccato strokelet.

In this form staccato passages occur frequently; it is also the one recommended by Baillot as helpful in the practice of this bowing style.

Sometimes it has proved of help to a student to make his first staccato practices at the bow middle on arpeggios over three and four strings as in Ex. 37.

Ex. 37.



While the rapid transition of the strings presents undoubtedly a new and to many, indeed, a formidable difficulty (see below), it appears on the other hand to have a peculiar energizing and stimulating effect on the forearm and to eliminate the interference of contrary muscles of the hand. In this case the *position* of the *whole arm* with regard to the body must *alter* rapidly *with every change of string*, so that the hand may on each be able to perform its required staccato producing duty. But as a general rule, on this account any transition of strings during a staccato run will be found to require special practice.

Below the center of gravity

The *firm* staccato from and *below* the *center of gravity* to the *nut* is seldom employed, owing to the increasing bow weight, which renders it heavy and unwieldy. Nevertheless, the execution of a staccato through the whole length of the stroke is by no means an unusual feat and the study of it is excellent practice.

The difficulty consists in adjusting to a nicety, the pressure or non-pressure of the forefinger, to the ever-varying bow weight, while the supinations of the hand and the stroke movement of the arm are in progress.

Near the *nut* the student will find it necessary to strongly

bend out the *wrist* and play with the *extreme edge* of the *bow hair* in order to alleviate the bow weight sufficiently, so that in the course of a fast staccato for the whole bow which may easily embrace fifty notes and more the wrist and hand may have to go through a considerable amount of bending and stretching. Here again, though, the structure of the hand and arm imposes its own conditions. It is, therefore, unwise to give further particulars.

With a stiffened arm

Only after the student has failed in spite of long-continued efforts, to acquire facility in staccato playing after the manner explained, should he attempt this bowing style with a rigid arm, as mentioned before.

Beginning also a little above the middle with few notes and working towards the point, gradually increasing their number, he should try to execute the shortest kind of strokelets (martelé) by stiff pushes from the arm stiffened from the shoulder blade to the fingers.

In this case the supinatory hand motion is relinquished, and the bow is pushed along by the forearm alone, while all the fingers as a whole act as a powerful brake.

Staccato with the bow down

The firm staccato with the down bow occurs more rarely and is then best executed, except in a slower tempo, after the manner of the Franco-Belgian School. At the lower part of the bow to about the center of gravity the bow is allowed to *weigh lightly* on the strings and with the wrist well *bent* out, the hand by stiffish little *backward jerks* (incomplete pronations) pulls the stick, just like a light weight, along. With the approach to the middle, the bow weight now being too light to effect by itself a firm start for each staccato strokelet, the wrist is gradually turned inward

(the second knuckles of the hand upward), which brings the left edge of the bow hair in contact with the string, and while the forefinger bears with increasing pressure onto the stick, the *bow* continues being pulled along in the same kind of stiff backward jerks or rather shakes of the ring finger side of the hand. Often the middle finger is then raised off the stick, or also, not seldom, both the middle and ring finger, and the bow is propelled by the sole support of the little finger and thumb, the index finger acting as a brake. The forearm through the whole proceeding moves slowly and stiffly. By this method, the down bow staccato can be executed at very great speed and with considerable brilliancy. But owing, perhaps, to the peculiar nervous tension in which the whole muscular apparatus is kept during the performance not many players succeed in getting it well under control. Executed in the ordinary (orthodox) way with a loose and normally bent wrist it lacks power and brilliancy and with it its *raison d'être* as compared to the upbow staccato.

Combinations of the staccato and other styles of bowing, which can be manifold, hardly require explanation or much special study. As a general rule, the first staccato strokelet following a smooth stroke or slur is modified although there are exceptions. In Ex. 38, the first strokelet of the two in one bow may be played thus modified:

Ex. 38.

It can also be played with a firm start. In the first instance, greater speed is likely to be obtained at the expense of crispness.

CHAPTER IX

Springing bowings — general principles governing their execution — two groups — with aided elasticity of the bow stick — the slow (moderate) spiccato or thrown stroke — modifications — combinations of the slow spiccato and slurs, etc. — staccato volant — method of practice.

More than any other bowing styles hitherto mentioned those of this, the third principal family of bowings, depend for their rendition on the natural elasticity of the bow, *i.e.*, its inherent capacity for rebounding. The bow temporarily leaves the string and the effect is one of lightness and resiliency not to be obtained by any other style of bowing.

To rebound, indeed, seems to be the natural tendency of the bow stick so soon as it is placed in a position to exercise it. One need only hold the bow very lightly and drop it at the point with its full weight on to the strings at an angle of ninety degrees and it will be found to rebound to almost the same height from which it was dropped.

The difficulty for the student is, therefore, in most cases, not so much to make the bow rebound as to master and control its all too-ready tendency to do so and render it serviceable.

In consequence of the evanescent, as well as the evasive, nature of a large portion of the bowings of this group, their execution before that of all other styles is bound up with and calls for subtleties in handling the bow.

General principles

Inquiring into the general principles which govern their execution we find: — The *stick rebounds* at the *same* angle (if we may call it an angle, for the bow movement is in reality or ought to be, *circular*, with the string forming a tangent) at which it *touches* the *string*, whether dropped or thrown and from whatever height.

2nd. The natural *tendency* to *rebound* is *greatest* at the *point*, decreases steadily towards the center of gravity and *ceases* altogether *near* the *nut* (according to the quality of the stick, from one-quarter to one-third of the bow from it).

3rd. That the bow *rebounds most freely*, if dropped at a *right* angle (ninety degrees) but the *tone* is *thin* and *hard*; greater rotundity and *volubility* of *tone* (by diminishing the drop angle) are *obtained* at the *price* of *resiliency* and crispness.

4th. The amount (*width*) of bow hair touching the string, edgewise or less so, and the corresponding *position* of the *stick* on the string *influence* not only the *tone* but the bow's *capacity* for *rebounding*.

Under two heads

One may classify the *bowings* of this group under *two heads*, *i.e.*, *firstly*, bowings in which the natural *elasticity* of the *stick* is *aided* and *controlled*, although this seems scarcely the right word as all bowings are supposedly under the control of the player.

And secondly, bowings where this *elasticity* acts *automatically*.

Under the *first* head come the *slow spiccato* or thrown stroke and its various modifications, the raised bow at the nut, *the picchietato*, *fouhêtté* and the staccato *volant*.

Under the second head: The fast *spiccato, sautillé, staccato à ricochet,* the springing bow arpeggios and the tremolo.

The physical process

The *physical process* at work in all springing bowings is, broadly speaking, the following: The bow by being thrown or lightly dropping on the string sets it into vibrations, is thrown off the string having received the string's vibrations into itself, as it were, and while the string is still vibrating under the shock of the contact, the bow touches it again thereby renewing and thus continuing its vibrations.

The *quality* of the *tone* emitted will *depend* on the *manner* in which the bow *hair* with every transient contact with the string is *able* to *renew* and *keep* up the *regularity* and *periodicity* of the string's *vibrations* or, to be more precise, to keep up the once-established exact amplitude of these vibrations. For besides and independent of the velocity of vibrations of a string which depends on the height of the tone, the string may vibrate mildly or strongly according to the nature of the vibratory cause, *i.e.*, the contact mild or strong, of the bow hair, and this quality has appropriately been called the "amplitude" of the vibrations. For the *bow* then to keep up with *every contact* with the string the *amplitude* of the *vibrations once established* under normal dynamic conditions is the *task* of the player.

Aided elasticity

Speaking first of the bowings with the elasticity of the bow stick aided, the first difficulty to be met is in combatting the natural tendency of the down stroke (pronation), to be heavier than the upstroke (supination). It is absolutely necessary not only that the bow hits the string every time at the same chosen angle, but also with the same chosen

dynamic force determined on the one hand, by the height of the drop, on the other by the action of the arm or hand, or both, causing or aiding this drop.

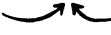
It is also necessary that this dynamic regularity of the bow contact is kept up during any transition from one string to another. In other words, the attitude of the whole arm and every part of it relative to the string must not undergo a change no matter how frequent or how fast the transition; and the contact must lastly coincide exactly with the stopping of the string by the fingers. The latter presents, especially, in the sautillé, seemingly insurmountable difficulties to the neophyte.

Method of Study

The slow spiccato (thrown stroke)

The student is advised to begin the study of the spiccato not with the "thrown" stroke proper, *i.e.*, at the part of the bow where the elasticity of the stick favors it most, but *near the nut.* Here the bow, as was stated, does not rebound of its own accord but is alternately made to touch the string and is raised.

Near the nut

He should employ about *one-third* of the *bow* length or a little less, just as for the smooth detaché strokes at the nut, and moving the upper arm freely (as he would, naturally, with such an amount of bow), but with a *supple wrist* hit the string with the edge of the bow hair so that it strikes it *at a very small angle*  taking care that the up and down movement are alike in every respect, both as to length of bow employed, angle of contact with the string and force of contact. Of importance in all forms of the thrown stroke is the manner of gripping the bow, that is, the degree of

force or pressure between thumb and forefinger. Even a very slight increase of counter-pressure on the part of the thumb will appreciably increase the rebound of the bow, send it up higher and bring it down proportionately with greater heaviness with a corresponding modifying influence on the tone.

The danger point for tone quality

Let the student bear in mind that the *danger point* for *tone quality* (roundness and nobility) in rebounding bowings is the angle of *ninety degrees*. The further away from it, viz., the *smaller* the *angle* of the contact of the bow hair with the string the less there is danger of *disturbing* the *continuity* of the string's *vibration* and with it the beauty of tone and *vice versa*. In other words, even while forcing the bow to feats of elasticity the *idea* of *drawing* it should be *foremost*. For this reason, this form of spiccato with long strokes is here recommended for first attempts at spiccato playing. But although the strokes employed be long and the angle of contact with the string small, the player should hit the string vigorously, taking full advantage of the elasticity of the stick even at this part by forcing it, as it were, to a semblance of rebound with the result that it is raised high above the string after each contact. The proceeding is a sort of whipping the string with broad elastic strokes. The hand grips the bow rather firmly, the thumb, of necessity, exercising a good deal of resistance, especially in the upstroke sweep (supination), but the wrist should retain its suppleness so that the *hand* may be *freely projected* forwards and backwards. The exercises must be done at first very *deliberately* with a sufficient *relaxatory* pause after each stroke to prevent any premature rigidity in the weaker muscles (wrist and hand), as well as the

least unevenness (through hurry) of the strokes and the tone quality, which is *forte*.

After the practice of scales as in Ex. 39, that of broken

Ex. 39.

Molto moderato.

Ex. 40.

thirds and sixths in the following forms (Ex. 40) is parricularly beneficial. It exercises all the muscles involved in the production of the spiccato at about an even ratio, viz., those of the shoulder and upper arm, the forearm, the wrist, hand, forefinger and thumb, and better prepares them for the subsequent, other forms of rebounding bowing styles.

Let the student be reminded that his guiding principle should be to manipulate the bow so that its action on the string never hinders or stops the latter's vibration, but as much as possible promotes them.

Near the center of gravity

For the *next step* in spiccato practice, the student should use the bow from a little below, to above the *center* of *gravity* and employ about from one-fourth to one-fifth of its length, *i.e.*, shorter strokes than before. The fact that the stick rebounds here of its own accord, though not quite so freely as at and above the middle, imposes new conditions: The upper arm moves more quietly; the grip of

the bow becomes lighter and what little counter-pressure of the thumb still remains is felt mostly with the upstroke (supination), for the bow now instead of whipping the string is only thrown with a certain energy and rebounds; and the resultant dynamic tone quality changes from the former *forte* to a *mezzo forte*. Above all the angle of the *bow's contact* which (as stated) is really the meeting point of two curves, owing to the shortening of the strokes (or vertical bow movement) can more approach one of ninety degrees. Also somewhat greater speed becomes possible without special effort although it is still rather limited. For exercises proceed in the same manner as above: Use scales with rests between the strokes, then without these at slightly increased speed and lastly, broken thirds and sixths and chords. (See supplement.)

The student will notice that the lower strings can bear a more vigorous contact of the bow hair than the E string. The higher the tone, that is, the *more rapid* the *vibrations*, the *more easily* the *regularity* is *disturbed*, hence the greater difficulty for the bow. Generally speaking, it is wise to decrease slightly the angle of the bow's contact on the E string.

At the bow middle

After the thrown stroke around the center of gravity has been practiced for a considerable time, the student may proceed to the form of moderate spiccato most widely applied, namely, that executed at the *bow middle*, the part, in other words, where natural elasticity and weight of the stick are most evenly balanced and favorable for rebounding. The modifications on the former mode of execution to insure the best tonal results here almost suggest themselves. In the first place, the strokes become still shorter, the angle

of the bow's contact, in consequence, becomes still nearer one of ninety degrees. The *bow* is *held lightly* in the hand and is *dropped*, and after its rebound is dropped again rather than thrown, though, in a sense, it may be called *throwing*, as a *certain amount of force* should best be added to the natural bow weight to attain the right crisp and yet round tonal effect. The upper arm has practically ceased moving except for transition of the strings but the *forearm assists* the *wrist* (which should be well bent and with the elbow relatively high) and the hand for dropping the bow on the string.

Sometimes players train their wrist so that the hand (finger joints loose) may execute this form of spiccato without the aid of the forearm, but it is doubtful that this is a gain in the end, except, perhaps, in speed, certainly not in tone quality. At all events the student who aims at a round and full tone quality should never lose sight of the stroke-idea, I mean the necessity of *drawing* the *bow however little instead* of simply *throwing* it with the purpose of getting it to rebound. In other words, the *contact* with the *string* always *falls* at the *stroke center;* the *two ends* of the *stroke* fall (in the air) *above* the string.

For dynamic variety

The tone quality of the spiccato around the middle (the exact portion is determined by the nature of the stick itself, and slightly differs therefore) is from *piano* to *mezzo piano* according to the height from which the bow is thrown and the force which is put into the throwing movement and also somewhat by the weight of the stick. Any increase of tone beyond *mezzo piano* is attained either by approaching a heavier part of the bow or by a firmer grip, especially on the part of the thumb which, in this case, acts like some-

thing in the nature of a springing board, in addition to the force of the drop. One might, with good reason, classify this louder (firmer) spiccato at the bow middle among the modifications of which I shall speak below.

The question of speed

The question of speed, with respect to the thrown stroke, has thus far only been touched upon, yet it is an important one and often a source of doubt and trouble to the student.

Apart from considerations of practice which should be pursued for a long time at very moderate speed to prevent muscular contraction of any kind, and progressively in each of the three stages of spiccato study as aforementioned — apart from such considerations — it will be found that speed even in the last of these stages is greatly limited and any attempt at increasing it beyond this limit is invariably followed by a paralysing stiffening up of one or the other set of muscles, mostly those of the hand and wrist. *Real speed* is indeed *scarcely* the *province* of the *thrown* stroke and to obtain it we must turn to the second group of rebounding bowing, those where the elasticity of the stick acts automatically.

Nevertheless, it is possible through certain modifications of either styles to bridge this speed-gulf between the slow and fast spiccato and sautillé to some extent.

Subdued rebounding

What militated against greater speed in the hitherto treated spiccato were two factors: the extent of the stroke movement employed and the height of the drop. Both were necessary to obtain the desirable tone quality, speed not being of immediate concern. But can we not reduce both without sacrificing the outstanding characteristics of the thrown stroke or resorting to automatic rebounding (see

under Sautillé)? Yes, and this is done by what one may call *restricted* or subdued *rebounding* of the stick. The bow by a light tapping motion is made to rebound so *close* to the *string* that although the angle of contact, owing to the small expenditure of bow length for each rebound, becomes necessarily *almost* one of 90 degrees, an otherwise hard and dry tone is more or less avoided. For this light tapping motion some players employ a comparatively limber wrist, others principally the forefinger and wrist and others again holding the bow firmly and the *wrist stiffish* (in a mild state of tension) use the forearm.

An *increase* of *tone* can be obtained by approaching *nearer* the nut (above and below the center of gravity), and employing more the *full width* of the bow *hair* instead of the edge (wrist less bent).

The bow movement in this case becomes somewhat *stiffer* requiring a greater tension of the wrist and forearm and a *firmer* grip. It is then called by some *picchietato.*

Modifications

With this style we have embarked on what are really *modifications* of the *spiccato* and raised bow at the nut. The *picchietato* stands about halfway between these two styles. If we go still nearer and *close* to the nut and employ *very short,* chopped *strokes, hitting* the string *energetically* and stiffly with the bow hair standing flat to the string (the wrist in consequence held comparatively low), we get a style of raised bow at the nut which corresponds to the martelé at the point and recommends itself for special purposes where the raised bow at the nut would sound too round and not be fast enough.

The purely æsthetic effect may be less satisfactory but the *benefit* accruing to the muscles of the hand, wrist and forearm and even upper arm and shoulder from a prolonged practice is quite *remarkable*, especially in forms as the following:

The picchietato

Ex. 41.

To play artificial harmonics

Another modification is the form of spiccato which is used for playing passages of *artificial harmonics*. In this case, very much like the first form of spiccato mentioned, that is, *near* the *nut*, *long strokes* are used (one-third of the bow and more), and the *angle* of *contact* with the string is very *small* but the *grip* of the bow is comparatively *loose* (no resisting pressure of the thumb) and the *vigor* with which the bow hair is made to *whip* the *string* is largely supplied by the *quick drawing* movement and a certain *weight* bearing down on the stick from the hand.

A *third modification* rather difficult of explanation is obtained by throwing the bow on the string at and below the center of gravity, but instead of allowing it to rebound of its own accord the bow hair is quickly and *very lightly pressed* against the string for the fraction of a second and the *bow* is *then raised* with the result, that each contact with the string carries with it a certain *martelé-like bite* or firmness.

This modified form of the spiccato or rather raised bow is only available at moderate speed.

A similar, if less distinctive, effect can also be procured by the easier method of utilizing a transient, resisting pressure of the thumb as a kind of spring board for each rebound of the bow.

A fourth modification

A *fourth modification*, applicable at the *nut*, above it and near the *center of gravity*, is a *gentle stroking* of the string with longish strokes in passages like the following:

Ex. 42.

The bow after each "caress" of the string is lightly lifted. While the hand and forearm are ostensibly engaged, the whole of the arm plays, nevertheless, an important part in keeping the bow absolutely parallel with the bridge during the whole proceeding, that is, *parallel* for the strokes as well as for the time, — and this should be well observed, — when the bow is in the air *describing* a *curve*. A common fault is to hold the arm immobile and work the bow from the wrist, unconcerned as to whether the bow hair strokes both the strings alternately at a right angle or not.

The *angle* of *contact* should be for this kind of lifted bow *very small* ⌒ to prevent any emphatic rebound, in fact, everything to promote scintillation must be avoided. The hand holds the bow lightly, yet a certain stability of the wrist without its being stiff, indeed, a certain firmness of the whole muscular apparatus (the opposite to a relaxed state) is necessary, more especially

when playing at some distance from the nut, to insure perfect control of the stick and with it the delicacy of touch which is a particular feature of this bowing style and is equalled only by similarly light, caressing detaché strokes at the extreme point.

In the last instance these and other modifications of the spiccato and raised bow at the nut are a matter of modification of the grip of the bow, firm or light, etc., the angle of contact, the length or extent of the stroke movement, and, of course, the part of the bow employed.

Near the point

Nearer the *point* the tone obtained by throwing (or dropping) the bow becomes too attenuated, thin and dry, to be of much practical service, except in the staccato volant (see below), and the staccato à ricochet.

Still the practice of spiccato near the point, although seldom pursued, is not without considerable benefit, especially as a preparation for the flying staccato. It strengthens both the ring finger side of the hand and the wrist through the exertion both must make to prevent the bow from jumping too high which it has every tendency of doing.

Combinations of the slow spiccato and slurs, etc.

The combinations of the thrown stroke with other styles of bowing are usually of peculiar difficulty for the student, more especially the alteration with slurs, accented and otherwise. The all too ready tendency of the stick to rebound becomes a source of trouble, at least, at the elastic bow middle.

The student who has not mastered the spiccato in every form and dynamic variety is advised to try each occurring *combination* of that kind, at *first near* the *nut* where the

bow does not of itself rebound and the assistance of the forearm is, therefore, more or less indispensable.

He should note the amount of bow necessary or convenient for the slur, lift the bow but little for the spiccato notes and make free use of the wrist and hand. *Then* he should try the same proceeding below and at the *center of gravity* and *finally* a little below and at the bow *middle.*

The available normal tone quality for spiccato is here p or possibly mp (or mf), and cannot be increased to *forte* much less ff. In order to do so one must use a heavier part of the bow or substitute another kind of stroke.

With this dynamic limitation of the spiccato at the bow middle in mind the student should avoid anything in the way of force or violence; he should, as a general rule, not throw the bow so much as *drop* it on to the string, utilizing only the natural weight from the hand to keep the bow rebounding in *close proximity* of the *string.* Especially, it must be prevented from jumping high for the last rebound preceding the change of bowing style (smooth detaché or slur).

In this last rebound the stick is, as it were, frustrated in its elastic effort, interrupted by a downward impulse of the forefinger (or hand), and brought back to the string, whereupon (for the slur, etc.), the forearm at once comes to the assistance of the hand in drawing the bow.

Bow only lifted (semi-spiccato)

Frequently in such forms of interspersed rebounding bowings and slurs at the bow middle the stick is not made to rebound at all, but is only lifted for one or the other of the strokes intended or marked spiccato.

Taking the following example, the notes marked with asterisks although supposed to be spiccato and similar in

effect, are not, in reality, played so, that is, the bow is dropped on to the string for the note with the trill but instead of being allowed to rebound it is drawn a very little

Ex. 43.

(half an inch or less), and only lifted again, by a slight supinatory movement of the hand, after the note following the trill.

Without this little device a neat rendering of this passage would probably present an unlooked-for and perhaps insolvable difficulty to the student. Yet similar cases abound in violin literature, particularly, in chamber music.

Strokes like the above for which the *bow* is *dropped* and *drawn or* which *finish* with its being *lightly lifted off* the string might be called *semi-spiccato.*

In Ex. 44, for instance, presenting two spiccato strokes

Ex. 44.

in one upbow, the first stroke following the slur may either be played semi-spiccato in the sense that the bow is only lifted after the note, or *bona fide* spiccato through the bow being raised immediately after the slur and dropped or thrown to rebound like its companion note. In the former instance it connects more smoothly with the preceding slur to the advantage of the latter; in the other instance the effect is somewhat more sprightly, airy,

although in a fast tempo the difference can barely be detected except by the expert's ear.

The supinatory hand movement for lifting the bow off the string so quickly and lightly requires special and long practice. It is subject to a correspondingly quick nerve impulse.

With admirable attention to detail Ot. Sevcik in his "Art of Bowing," Op. 2, placed the sign) after the first spiccato stroke following a slur or smooth stroke to indicate that, in the variant in question, he wishes this first note to be played semi-spiccato, *i.e.*, with the bow lifted after the note, while in the absence of this sign it is meant to be played with the bow, thrown or dropped. But as the student would vainly look for similar friendly guiding signs on his pilgrimage to the practical application of the art of the bow he should in dealing with the great variety of bowings under this head remember as the main points: to *keep* the *bow near* the *strings*, never lose sight of the *stroke-idea, i.e.*, the *principle* that even in rebounding, it is a stroke, a *drawing movement*, which is being executed and to hold the *forearm ever ready* to *assist* the *hand and wrist* in carrying *this stroke-idea* into *effect.*

The staccato volant or flying staccato

The bowing style which yet comes under the head of thrown strokes with aided elasticity of the stick is the *staccato volant.*

It is also identified with the French School more than any other and is fully mastered by few players. In addition to every characteristic of the *bona fide* slow spiccato it shows a resemblance to the upbow staccato. In fact, it is a *succession of spiccato rebounds in one bow.*

The stick is made to hop along the string much like a flat stone thrown in a certain way skips over the smooth

surface of a pond. But its execution like that of the firm staccato is bound up with certain extra conditions, physical and nervous, which render it comparatively easy at moderate speed, difficult in the reverse case.

In the latter its successful performance depends, on the one hand, on delicate supinations of the ring finger side of the hand propelling the bow along under the slow piloting of the forearm, on the other on a finely tempered resistance of the forefinger and thumb. A very little too much in this last respect results at once in too free a rebound of the stick and this in disaster as to speed as well as tone quality.

Method of practice

A good *preparation* for the staccato volant is the study of *all upbow spiccato* strokes at the *bow middle* and above, with the bow remaining on the same spot. The *stick*, held lightly is

Ex. 45.

thrown with some *vigor* or *propelled* by the *hand* from not too great a height on to the string at an *angle* of *about forty-five degrees*. It rebounds at the same angle, and, while only the hand follows the forward movement of the bow and the *arm* itself remains *stationary*, the bow is made to describe a *backward curve* in the air so to be ready to be thrown on the string again at the former point of contact and at exactly the *same angle* to the string. (The whole bow movement under the guidance of the hand represents really a circle, the string a tangent.) This is to be repeated at various parts of the upper bow half until the student has learned to propel the bow from the hand

so that it hits the string every time in a manner circular and at an angle most conducive to tone quality. He may *then* go through the same proceeding with *forefinger* and *thumb very lightly pinching* the stick, *i.e.*, just enough to give the contact with the string and the rebound a little *additional force* without sending the bow too high into the air and jeopardizing the roundness of the tone.

These preliminaries done, the student should *practice* the *staccato volant* after the manner of the firm staccato in groups of three, four, six and nine notes progressively at and a little above the bow middle.

The stick is thrown (propelled) as described above, but now the forearm moves slowly and a little stiffly, with the bow-propelling hand according to the greater or lesser number of rebounds. The *forefinger* and *thumb* exercise a *faint pressure* while the rest of the *hand bears down* somewhat heavily on to the stick to *moderate* the action of these fingers and with it the *spring* of the bow.

In proportion as more notes are being played in one bow and the speed is increased the rebounds, besides beginning nearer the point, become necessarily more compressed, reduced in height and bow expenditure and there being no time for even a partial relaxation of any of the muscles concerned a state of mild tension ensues, chiefly in the wrist, which very easily turns into a fatal rigidity.

For this reason the progressive *practice* with *smaller groups* of *notes* and at moderate speed should be *pursued* for a *long time.*

But it is particularly the attitude of the forearm which enters as an important factor into the execution of the *staccato volant* as soon as greater speed is attempted.

On this account and because the student must learn, as

a *sine qua non* in this case, to make the bow, in hopping along, *lift* itself as *little* as *possible* over the strings, to ensure *continuity* and *regularity* of the string's *vibrations*, that I recommend the *use* of *much bow* (two-thirds or more), for the staccato volant as soon as the slow progressive work above described has prepared his hand and wrist in the right direction.

Here again, groups 5, 7, 9 and 13 notes, at first on one string, later in scales and broken chords, may be used (see Supplement). I should mention in conclusion that the *staccato volant* can begin either with the bow thrown on the string or (semi-spiccato), *i.e.*, with the bow raised after the first note (which is connecting it smoothly with the preceding one), and then thrown.

CHAPTER X

Springing bowings continued — automatic rebounding — the fast spiccato or sautillé (light skipping bow) — experimental method of study — sautillé in connection with rapid fingering — across strings — the staccato à ricochet — springing bow arpeggio — method of study — over double strings — the tremolo.

Fast spiccato or sautillé

The *speed* in which the varieties of the thrown stroke can be successfully executed in the manner described, may somewhat differ with players, but there is a *distinct limit* to it even with the best performers. When this is to be *exceeded* the *voluntarily controlled rebounding* movements of the bow prove *insufficient* and would, if persisted in, result in impotent stiffness. At this juncture hand and forearm are forced to dissolve partnership, the *bow* must be made to *rebound automatically* and the slow and moderate spiccato becomes a *fast* one or the *sautillé.*

Bow rebounds automatically

Although the same general principles govern both the thrown stroke at the bow middle and the sautillé the difference in speed creates a difference in method great enough that proficiency in the former by no means prognosticates an equal facility in the latter, or can even be considered an unfailing preparation for it. In addition, and accentuating this difference in method is the fact that individuality, *i.e.*, the physical structure of the hand, looseness of the wrist, etc., and nervous predisposition exercise here a greater influence

than is the case in the thrown stroke. There are practically no fast rules, applicable to all individuals, for learning the sautillé, and a loose wrist, though essential, is not the only factor that counts. While some players insist in holding the bow in a certain way, others manage to get the same effect in some other. All the more important and helpful under these circumstances are the suggestions to be gleaned from the *general principle underlying* the *production* of this evasive style of bowing.

Reasons for difficulty

Several are the reasons why the sautillé presents a difficulty to many students. They are usually traceable to a misapprehension or ignorance of these principles. Leaving aside the physical impossibility of executing the sautillé after the manner of the thrown stroke, the *first point* to be learned from the application of general principles is the fact that the *sautillé*, in spite of its scintillating character, bears a *close resemblance* to and is, indeed, derived from the *fast smooth hand stroke*. It is a hand stroke *reduced* to a *minimum of length*.

In learning the *sautillé* the *stroke-idea*, therefore, the idea of *drawing* the bow, not its rebounding so much, should be *uppermost* in the pupil's mind and his efforts should go in this direction. It is the only means of *combining* least interrupted, and, therefore, most perfect string vibrations with great speed of the bow movement; in other words, only by the bow being kept in the *closest proximity* of the *string*, barely leaving it, is it possible to obtain at such speed the conditions, *lightness* and *regularity* of *string contact* on which bowings of this class depend before all others for their perfection.

Experimental method of study

With the idea then that the bow must not be thrown but be drawn, however little, the student should *experiment* to produce a *sautillé*, that is, hopping or light skipping of the bow. If he has developed his wrist sufficiently, or is blessed, to begin with, with a loose wrist, he will experience no difficulty in executing very short hand strokes at the bow middle at a fair speed, but in all probability he will discover that the bow refuses to rebound. What he produces are simply short, smooth strokes, with no trace of scintillation. What is he to do? Experiment? Yes.

A certain knack is necessary to get the bow to raise itself off the string.

A knack

The *knack* consists in allowing a *certain amount* of *perpendicular hand motion* to enter into the *sideway motion* (in the string direction) of the *hand*, or in so projecting the hand backwards and forwards that it raises the bow at the same time to a very small extent above the string, *i.e.*, not more, but rather less, than is about necessary in the way of perpendicular hand motion to pass from one string to an adjoining one.

Knowing the knack, however, is by no means synonymus with accomplishing the feat, as the student will find; and here he has to *experiment*. *On the basis* of the *general principles* laid down at the beginning of the preceding chapter, I can only assist him in these endeavors with a few suggestions.

In order to acquire first the knack of getting the bow to jump at all, sautillé fashion, it may prove helpful to take two strings, say the G and D, place the bow, held lightly with all the fingers (or the little finger only loosely hanging down), a little below the middle, that is, at a compara-

tively heavier but still elastic part and execute, with smooth hand stroke, the following, taking note of the

Ex. 46.

amount of the perpendicular hand motion necessary to effect the transition from the G to the D. Suddenly he should give a somewhat more violent accent with the forefinger on the first note but relax the muscles producing it immediately. The accent in connection with the established downward (perpendicular), hand motion, will, in all probability, raise the bow off the string. Now he should keep up the rebounding by continuing the same (perpendicular) hand motion, while at the same time, the bow is projected (drawn) in the string direction as before for the smooth strokes. The hand is thus made to swing backwards and forwards like a pendulum for the rest of the notes, the next accent for which the forearm should quickly resume the G string level can already be less emphatic to renew the same effect on the bow and once its hopping movement is well established it will hardly be required any longer or perceptible.

Remarks There is usually a *tendency* of the *perpendicular hand motion* being *too emphatic* in *proportion* to the *sidewise motion* of the hand which should always be *primary*, with the result that the bow is caused to jump too high and irregularly. To counteract this fault and invite a certain unconscious but later indispensable participation of the forearm make the *stroke* move-

ments (backwards and forwards) of the hand for a time *as long as possible*, that is, as long as the looseness of the wrist and the tempo will permit, and where the wrist is not naturally limber enough, allow a limited *coöperation* of the *forearm* to lengthen the stroke movements. This will not only induce the bow hair to touch the string at a small angle of contact (see principle), promoting more perfect vibratory conditions with their results on the tone quality, but it will also establish from the first, the most favorable proportion between sidewise and perpendicular hand motion in the execution of the sautillé which may be about 2 to 1.

The *sautillé* thus produced will probably be uneven and jerky and the speed not very great as yet, but if the student conducts his further endeavors along these lines he will soon succeed in improving it. All undue force and *violence* must be *avoided.* The bow will, indeed, be found obedient to a very slight impulse for rebounding as long as there is *no muscular opposition* in either *hand, wrist* or *forearm,* the more *relatively relaxed* the *whole muscular* apparatus is kept in these endeavors the better. As the pronatory (down stroke) movement of the hand, here the downward swing, is naturally stronger than the supinatory one and tends to disturb the necessary regularity of the string's vibrations, care must be taken that the pendulum swing of the hand is exactly even. To promote this, equalizing the rebounds, the practice of triplets is recommended.

Further increase of speed

The *next step* in the study of the sautillé is a further *increase* of *speed;* individual physical traits will here again be found to enter as more or less modifying factors. Speed naturally *depends* on the shortness of the *bow* movements in both the

vertical and the perpendicular direction at their *proper ratio* and upon the thence resulting closeness, lightness and regularity of the bow's contact with the string. I would here reiterate that the bow rebounds most freely if it touches the string at a right angle and with the full breadth of the hair but the tone is hard and dry; the tone quality improves with an edgewise position of the hair. Taking these points for guide, together with the experience gained in the preceding first steps in sautillé playing, the pupil should be able to experiment with success in the attainment of further speed. Some students seem, indeed, to have no difficulty whatsoever in this direction once they have acquired the knack of getting the bow to jump, but others have, and for these the following suggestions are intended.

If the *bow* is inclined to *jump too high*, thereby retarding the rebound and making the tone dry, it is a sign that the *perpendicular* hand motion is in *excess of* the sidewise motion and that very likely the bow *stands too straight.* To remedy the fault the student may bend the wrist slightly more or raise the arm a little higher, thereby *diminishing* the *amount* of *hair* touching the string. *If* in this case the *rebound* suffers, and, in consequence, becomes *too weak*, lacking in crispness while the tone is thin, he may try a *middle course* and if not successful then in getting speed, rebound and satisfactory tone quality (mp) combined, *try some other way* to establish the right ratio between sidewise and perpendicular hand motion. A *slight pressure* (pinching the stick) between the *forefinger* and *thumb* will often be found effectual in *preventing* the *bow* from *jumping too high*, which, it will be seen, was the reverse case in the thrown stroke. The wrist is in this

instance held low (not bent out), even to the extent of being slightly turned inward, though this is entirely individual.

The *attitude* of the *fingers* on the *stick* can also be a point of considerable *import.*

For the sake of promoting as complete a supinatory movement of the hand as possible, *it is well* to *execute* the *sautillé* with *all fingers on the bow,* but as in most cases, a greater freedom of the wrist is obtained when the *little finger* is off the stick the student should find out what is preferable in his case.

Still geater freedom of the hand and lightness of touch may sometimes be secured if so desired, by also raising the middle finger so that the bow movement is effected by the forefinger and ring finger alone in conjunction with the thumb.

For very delicate effects

For very delicate effects, especially in the highest registers on the E string where anything in the nature of forcing the bow to rebound would prove fatal to the tone quality, even the ring finger may be allowed to leave its place on the stick with impunity and the bow be held with only the forefinger, middle finger and thumb. A light fluttering movement of the ring finger side of the hand in this case suffices to keep the bow rebounding in closest proximity to the string; an exceptionally high elbow and edgewise position of the bow hair will here recommend itself. The same result is sometimes obtained by stiffening the wrist and slightly lengthening the bow movements in these high registers.

Special practice is required for *sautillé* across strings and where, as is most common, a change of finger coincides

with each rebound. In the latter instance it is either the fingers which are swifter than the bow, causing the difficulty, or the bow makes its rebound too fast for the action of the fingers. This creates immediately a condition which I need not describe when it is considered that the slightest hesitancy or hurry of one finger in doing its duty, immediately disturbs the regularity of the bow's contact with the string, and its rebound, and with it, imperils the tone quality.

Sautillé in connection with rapid fingering

Almost the only way of mastering the difficulty is in *slow practice* of a passage of that nature, first with smooth detaché strokes, gradually to increase the tempo and finally to substitute the sautillé for the smooth bowing. *Accentuating* the *beats* to begin with and doing so more and more lightly as the tempo is being increased will also be an aid, as, indeed, most accentuation judiciously and discreetly applied will *induce* clearness and precision to the work of both the left and right hand. An occasional accent on a down bow beat may even send a lagging bow with renewed energy on its dancing pace.

Great benefit, however, will be derived from preparatory exercises for sautillé in connection with quick fingering, especially when arranged progressively, that is, so that the fingers are not given at first too severe a task for agility and independence. For it must be remembered that the third and little finger being further away from the finger board require a longer time to fall into their places; and infinitesimal though this be the difference is enough to upset the delicate work of the scintillating bow stick. In the appendix some examples of preparatory exercises are given; they may be supplemented at will by

some of Schradieck's or other finger exercises before so difficult a task as Paganini's Perpetuo Mobile or similar compositions are attempted.

Sautillé across strings

The sautillé across strings may be limited to the occasional passing from string to string, as it comes about in scales and other passages, or it may represent a continuous alternation of strings in the nature of the springing bow arpeggio. In either case it means, of course, a corresponding rapid change of string levels without the scintillation of the bow being interfered with, much less interrupted. In order *to obtain* the *greatest possible regularity of bow contact* with the string, even to the amount of bow hair, it is *well* to *keep hand* and *forearm* continually, as much as possible, in the same (individually *most favorable*) *relative line* or *position*, in other words to change string levels with practically the whole arm no matter how rapid its movements may have to be; for it is obvious that by holding the arm (upper arm and forearm) more or less quiet and making the hand alone (from the wrist) keep up the rebounding of the bow, the position of the bow hair on the strings of necessity changes from one more standing flat to one more edgewise.

While this may be of no very great consequence on the tone quality in this case, the difference in hair contact being so negligible and the speed almost covering it up, stress is thereby laid on the other hand on the *importance* (on general principles) of learning to *move* the *whole arm freely*, if needs be, under any and *all speed conditions*, as an aid to the *hand*, *versus* an exaggerated, unnatural and in the last instance inefficient use of the wrist and hand alone.

In a great many cases a *vigorous use* of the *forearm*

carrying with it an *unconscious accent* is instrumental in *speeding* the bow more effectually across the strings than a mere accent of the forefinger.

How potent such an accent is in examples like the following: the student will discover when he tries the same

Ex. 47.

example or similar ones, beginning with the upbow. The impetus from the forearm is thereby reduced by more than half its force. Not seldom the upbow rebound is only the reflex action of an accent proceeding from either the forearm or forefinger or both. Nevertheless, in forms as in example: 47 (*b*) it will be on the whole advisable to take a middle course with regard to the movement of the arm, that is, to keep it moving between the A and D string direction and the hand busy covering also the two outlying strings. Individual predisposition and physical structure of the hand and wrist will here have to be taken into account as in so many instances in bowing.

In continuous *sautillé* over *two strings* the hand to all intents manages to keep up the rebounding; the forearm, nevertheless, even here, responds to it from the elbow joint and aids by a little, vibrato-like, tremulous motion in alternate directions.

Staccato à ricochet

The relation which the sautillé bears to the slow spiccato or thrown stroke, the *staccato à ricochet* bears to the flying staccato (staccato volant).

In the latter, the rebounding of the bow was under the control of the hand and forearm, in the *staccato à ricochet* this is left more or less to the natural elasticity of the stick, the hand and arm only guiding the bow in the way it should go and aiding it, if so required in passing from one string to another. Many notes can in this manner be executed in one stroke with lightning speed and pearl-like distinctness, in point of speed, even exceeding the possibilities of the firm staccato. Its application for musical ends, however, is far more limited being practically restricted to a few compositions of the virtuoso class, especially by Paganini, Ernst and Bazzini, if we except the instances where only a few notes are played *à ricochet* in some of de Bériot's, Vieuxtemps' and other works.

For few notes

The *best approach* to its *study* is the *thrown bow* in groups of two, three and four repeated notes in one bow above the bow middle. By throwing the bow a little more vigorously on the string it readily rebounds a small number of times of its own accord provided there is no interference on the part of the muscles of the hand, more particularly the fingers.

The rebounding of the stick is only felt as a trembling on the inside of the hand if the bow is held lightly, and all the finger joints are kept, as they ought to be, responsive and yielding to the bow movement.

The stick *without appreciably altering* its *point* of *contact* with the *string*, acts in obedience to the principle that the bow rebounds most freely if thrown at a right angle. The *first throw*, however, should *not* be exactly *perpendicular but so* that it *invites* a certain limited *forward movement* of the *bow* as otherwise the tone produced would be too dry and hard. The only difficult part of this kind of ricochet

is in the *arrest* of the bow. It must be done neatly without any apparent or any actual effort on the part of the player: A light tapping motion of the forefinger, let us say (to which the hand and wrist respond), has caused the stick to rebound three or four times; after the last rebound, slightly less high, the *bow* is *arrested* in the *air* and held there by an *elastic upward recoil* (swinging back motion) of the hand.

In longer runs

More difficult is the proceeding in *longer runs* or scales played à ricochet. Here it is not only a question of timing the dropping of the fingers to the rebounding of the bow but of calculating to a nicety the height and force of the throw which will make the stick rebound an intended number of times, and besides, as may be the case, crossing strings.

The student will do well to begin with three or four notes and gradually increase the number. The ricochet can be done with both up- and down bow from between the point and middle. It sounds more brilliant in the upstroke, the distance between bow hair and stick being greater at the point and the stick more elastic at that part it offers a better resistance to the required force of the throw as well as more resiliency; on the other hand, for the higher tone registers (E string), the down bow throw above the middle is rather more favorable.

The bow, in either case, should be thrown so that the bow *hair hits* the *string* with its *full breadth* not the edge. For the throw, the *bow* is *held firmly* (wrist rather stiffly), but the *grip* is *relaxed immediately*, allowing the stick to hop along unhampered under the light *guidance* of the *hand* while simultaneously the *forearm moves slowly* in the direction of the string.

Sometimes the à ricochet finishes with the *arrest* of the bow not in the air but *on* the *string*. In this case the *fore-finger* which should be ever alert and ready to do its duty, *affects* the *arrest* by a *quick downward* bearing on to the stick which fastens the latter to the string, if in the upstroke, as is mostly the case, the ring finger (supinatory motion) acts as both propelling and moderating force.

The springing bow arpeggio

With the *springing bow arpeggio* and tremolo we reach the last and perhaps some of the most fascinating ones on the list of bowings of this family. The natural resiliency of the stick exhibits itself here to a degree even more surprising and quite as charming in effect as in the *sautillé* and *à ricochet*.

The springing bow arpeggio is, of course, founded on a certain distribution of the fingers of the left hand over several strings and may be called a friskier brother of the slurred, and slurred and detached arpeggio; but in including what is, strictly speaking, not arpeggio, that is, the springing over two strings and the tremolo (springing on one string), I have more in mind the method of execution which is shared by all and every one of the bowings of this group. And as the technical method of execution is common to all so they are also *subject* to the *foundational principles* for *all springing bowings generally*.

I need not reiterate them. Again on the one hand, the action of the bow with respect to the string (string contact) is of importance, on the other, the work of the arm, respectively, the relation and coöperation of its different parts to bring about the best vibratory conditions with the rebounding of the bow.

In the spiccato, sautillé, and kindred bowing styles it

was the vertical (stroke) movement of the hand which formed the prime factor, and the perpendicular hand motion, the auxiliary one; in the *springing* bow *arpeggio* just the reverse takes place, the *perpendicular movement* of the *hand* and *corresponding* (to and from the body) *motion* of the *arm* is the *most important* item, and the *stroke movement*, in so far as it enters at all, is of *secondary consideration*. I refer here to the arpeggio over several strings; in the tremolo, as it is called, the conditions are somewhat different. Nowhere else, indeed, in the art of bowing is the perpendicular hand (and forearm) movement so clearly in evidence and so much a *conditio sine qua non*.

Stroke movement reduced to a minimum

To make this manifest, let us turn first to the *slurred arpeggio*. Taking example 48: The action of the bow arm is here a stroke movement which by a perpendicular motion of the hand and participation of the forearm (both in the vertical direction and to and from the body) carries the

Ex. 48.

bow over the three strings; the less bow we employ the more we are obliged to call upon the perpendicular hand and arm movement for the transition of the strings. Supposing we *reduce* this *stroke* or *vertical movement* to a *minimum* so that, as the result, the *bow scarcely alters its point of contact* with *each* string, or in other words, *remains almost stationary*, we then reach the point where, with the

bow *hair touching each successive* string at almost a right angle, the *bow* is *most disposed* to *rebound* (see general principles).

A certain knack and another knack

It is here where the springing bow arpeggio becomes possible, nay, an unavoidable necessity. It requires only the *knack* to get the *bow* to first *lift itself* off the string, and another knack to keep it rebounding back and forth over the strings. The first consists in applying a certain kind of accent or pronatory impulse from the forefinger in the nature of a *quick light tap* on a rebounding ball which is responded to by an equally light reflex or *upward action* of the *hand* from a loose wrist and is accompanied by a simultaneous movement of the arm in the direction of the higher string, both forcing the stick to rebound and carrying it hopping over the three strings.

The *second knack* consists simply in the *changing* of *bow* by a vertical hand motion *so lightly* that through *reversing* the *arm movement* (for the upstroke) the rebounding is not only *not interrupted* but the stick is sent back over the strings hopping.

On arriving at the lowest note the former accent of the forefinger may be repeated (with arpeggios over four strings, it often is), but the expert player can keep the bow jumping seemingly without any renewed impulse by changing bow and repeating the arm motion, or by an accent and reflex action of the hand so light, that he is hardly conscious of it, much less the listener.

As I said, in springing bow arpeggio over four strings, especially in a relative louder tone shade, the change of bow on the second highest note is sometimes accompanied by another light accent or supinatory impulse from ring

finger side of the hand and the forefinger, but necessary it is not, as the more emphatic movement of the arm, which in the first place largely helped the stick over the strings, is also sufficient for the return springing, providing the change of bow was light and undisturbing enough. This is, likewise, the case with the renewed accent on the second lowest note.

The action of the arm

Much of the *perfection* of the *springing bow arpeggio depends* on the *action* of the *arm, forearm* and *upper arm.* It must be *relatively slow* and *absolutely* even or *regular,* compelling the bow to touch each successive string with the regularity of clockwork, just to such a fraction of a second as will insure a satisfactory vibratory response in the nature of a clear tone, for the slightest irregularity in the string contact must disturb the delicate play of the stick.

Difficulties in the way

In keeping with general principles, the *stick* should be made to *lie* on the strings *upright* (straight), *i.e.,* not edgewise, so that the *full breadth* of the *hair grips* the strings. It should, also for *first attempts, not* be used above the *middle* but a *trifle below* where the *elasticity* of the *stick carries with it a greater weight,* to invite a more forceable coöperation of the arm and a stronger accent. It is most essential that the bow, as I said, alters its *point* of *contact,* with each string as little as possible, viz., remains practically stationary, as far as drawing is concerned, for *any drawing movement* at once *diminishes,* respectively, destroys the *bow's jumping propensity.* On the other hand, under the most favorable conditions for rebounding the bow runs the greatest danger of *rebounding too much* and awkwardly. This is usually the *first difficulty* the student meets after

he has succeeded in getting his bow to jump at all. It can only be mastered in time, just as the elimination of accents to renew the rebounding. It is bound up with that of speed and the latter, as in *sautillé*, depends on the lightness, regularity and closeness of the bow's contact with the strings, that is, on keeping the bow close enough to the string and yet rebounding crisply. I might say that the hand, as a whole, should somewhat bear down a little heavily on the stick and the forefinger and thumb with the middle finger should pinch it enough to give it a feeling of firmness of the grip without impairing in any way the responsiveness (looseness) of the wrist, but as these suggestions, individual at best, might easily be misunderstood or acted upon indiscriminately, they cannot be taken as a guarantee of ultimate success. In the last instance only intelligent and persistent, individual *efforts* will eventually find the hidden spring to perfection in any difficult or more subtle bowing style. In the case of the springing bow arpeggio and sautillé, particularly, perfection will come when the *muscles* (especially those of the *wrist*, which is very much involved) have, by much work and many circuitous endeavors, attained that *steel-like elasticity* and *strength*, the nature of which must be felt to be understood.

Methods of study

There is no quick and unfailing method of learning the springing bow arpeggio. It is really not what one might call a very difficult bowing style or one in the acquiring of which individuality plays a great part. Nevertheless, not a few students struggle long and vainly to acquire it.

Failure results mostly from two causes: The arm does not function well, by which I mean, that it is not made

the chief controlling agent, permitting the bow to assume the various string levels with automatic regularity and continuity of movement, or the student fails to apply the kind of accent ("knack" as I call it), which will lift the bow in the first place and cause it to rebound of its own accord.

Two causes for failure

In *learning* the springing bow arpeggio, therefore, the student should first concentrate on and *master* the *arm movement* with no thought of making the bow jump but by simply *slurring* the *strings* with *very little* expenditure of *bow length* by means of the combined circular arm-, wrist-, and hand-stroke, explained above. The *arm* must *move slowly;* a very slight pressure or weight should make the *bow hair adhere* to the *string.* The chief aim here is the *exact preservation* of *string levels* of the bow which brings about the necessary continuity and regularity of string contact. An easy G major chord distributed over three or four strings furnishes suitable material.

The automatic movement of the arm having been learned at the bow middle, the pupil should devote his attention to the little hand motion affecting the *change* of bow for the *second* of the two *repeated* notes.

When he is able to execute these various *arpeggio* forms *slurred* with a *minimum* of *bow length* he may proceed with *experimenting* on the *knack* which is *to set* the *bow free.* As in the case of the *sautillé* the student's work here must of necessity be much in the nature of individual experiment on the basis of well-understood, general principles.

Since the *perpendicular hand* movement is the *lever* pre-eminently used for making the *bow rebound,* I advise the student to conduct his experiments over *two strings* at *first,* as in Ex. 49.

Ex. 49.

He should *begin* by *slurring* them and then by means of the *sudden accent* from the *forefinger* (described above), with the reflex action of the hand, try to force the stick off the string.

For this limited rebound over two strings it is well to *allow* the *arm* a little more *freedom* for movement in the *vertical direction*, in other words, not to reduce the expenditure of bow length too much as the accent is likely to turn out too strong for the effort intended and needed, making the bow jump too high and the tone produced hard.

The chief difficulty, after this, consists mostly in keeping up the springing during the change of bow, which should be very light and smooth; for the pupil will first have the feeling that he must renew the rebounding by a fresh accent. Only patient endeavor will overcome these difficulties one by one. No *extra exertion* of any *muscles* or any part of the arm *is necessary;* indeed, it is only a bar to proficiency. Once the "knack" has been acquired of making and keeping the bow springing over two strings with any sort of regularity it is comparatively easy to accomplish the same feat over *three* and *four strings*. In the latter instance the more *emphatic movements* of the *whole arm* are an *aid* to the bow for jumping in the first place, but this is to some extent counteracted by the necessity, at least in the beginning, of a stronger supina-

tory accent for the return rebound. I repeat that the less any stroke movement enters, except for the change of bow, the better.

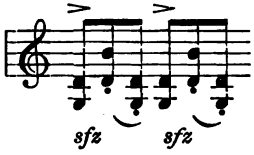
By another method

It is also possible to learn the spring bow arpeggio by another *method:* Begin here as in Ex. 50 with playing the chords after the *manner* of the *thrown* stroke *below* the *middle* by *aiding* the

Ex. 50.

elasticity of the stick, and then *substitute* the former kind of *accent* and *hand recoil.* It may help in this to experiment with double notes as in Ex. 51.

Ex. 51.



Double string arpeggio

For in this case the naturally *stronger accent* and more emphatic *arm movement carry* with them a *greater compelling* force for the bow's *reaction* in bounding.

This is also the case with springing bow arpeggio formed of double notes.

The bow *hair* must *grip* here *alternately two strings* instead of one, and naturally the *string-crossing movements* of the *arm* and *hand* forcing the bow to this extra exertion

have to correspond. They become more rapid, more *violent*, more exacting and the *accents* in proportion. For this reason the study of double string arpeggios reacts beneficially on work in single note arpeggios.

The tremolo

The tremolo finally which is included among the springing bow arpeggios, presents the automatic rebounding of the bow stick in a partially new light. Any stronger impelling force on the part of the arm, wrist or forefinger to cause the rebounding of the bow is practically absent here. To all intents the bow is kept dancing in groups of two or three notes on one string by simply changing bow. In reality the change of bow carries with it a certain subtle impetus from the hand (forefinger and wrist), to the bow, but more important it is that the *grip* of the *hand* be *so light* that the *rebounds* of the bow, once they have been started, *can continue* under it *undisturbed* by *a change* of bow.

The drawing movement being practically the only one in evidence, although there is, of course, a slight perpendicular hand motion going with it, the scintillations of the bow in the tremolo are less crisp. The bow only, as it were, rolls over the string in low rebounds. The effect is surprising, fanciful, but comparatively weak and perhaps on this account seldom employed.

The tremolo is not particularly difficult after the springing bow has been mastered; again, no special muscular effort is required. It may be tried by applying at once automatic rebounding after the manner described for the springing bow arpeggio over two strings, or by experimenting first with the thrown stroke method (aided elasticity of the stick).

CHAPTER XI

Bowing styles not mentioned in the foregoing chapters — the accented detaché — skipping strings — martelé and skipping strings — the *grand martelé* — the sustained stroke with martelé start — the *staccato porté* — the syncopated slurs — the parlando — a style of rarer occurrence.

Among the bowing styles not hitherto touched upon but coming under the head of one or the other of the foundational ones, I may mention first, in order under detaché, the *accented detaché.*

Accented detaché

Each *stroke starts* with a *forceful accent,* produced by the forefinger and wrist (for the upstroke with the aid of the ring finger side of the hand). It makes the strokes the reverse of smooth, each being thus marked by a roughish (jerky) change of bow, although roughness even here must be avoided. But for the fact that the *stroke after* this *accent* is *broad* and *sustained* and the string's *vibrations continuous* as in the smooth detaché, it might be interpreted as not belonging to that family of bowings. The length of the accented stroke can vary from two-thirds to a few inches of the bow length and its dynamic quality likewise; it is more generally used, however, in forte where it expresses well a passionate mood.

Skipping strings

Skipping strings is another form of detaché occasionally met with. Viotti in his concertos (No. 22) makes frequent and effective use of it. The *stroke* is also supposed to be *sus-*

tained, but on account of the quick alternating of strings and consequent violent moving of the arm (the wrist alone cannot by hand movement affect it in *forte*), they appear somewhat of the *nature* of the *Grand Detaché, i.e.,* the *vibrations* of the string are *not* quite kept up at their full amplitude. In F, the middle or a little above is the part of the bow best employed and the forearm chiefly instrumental in effecting the passing of the bow from one string to the other without sounding the intervening one.

In piano near the point, the wrist and hand can be made the principal string-crossing agents, but the forearm is nevertheless engaged to a greater or less extent.

Skipping strings for martelé

Skipping strings in connection with *martelé* as exemplified in the well-known Kreutzer Etude, No. 7, shows a resemblance to the last-described style in that it requires a similar emphatic arm movement to avoid touching the intervening string but the stroke itself bears, of course, the characteristics of the staccato kind, more when executed at a slow tempo, less at greater speed. In the latter instance the down bow start becomes virtually a firm, quick accent from the *forefinger* (a little pinch between the forefinger and thumb), the upstroke start a corresponding one from the ring finger side of the hand to which the forefinger lends strength, the *wrist* is kept *flexible.* The bow expenditure is *reduced* to a minimum, the strokes, indeed, resemble more an interplay of strong accents, while the perpendicular hand motions, with the coöperation of the arm (moving to and from the body), enable the bow to assume the rapidly changing string levels.

In the *grand martelé,* on the other hand, all features of the *bona fide* family appear, as it were, *en gros,* exaggerated.

The grand martelé

It is *par excellence* a style for study, as a means to an end rather than for practical application. For the latter it is too cumbersome and its effect, strictly speaking, not musical enough.

The bow is drawn its full length as rapidly as possible, after an equally *firm start*, at both *nut* and *point*. This start requires particular care, for although in kind not different from that previously referred to, the length and great rapidity of the subsequent stroke force on it somewhat, what one may call, extra obligations.

At the *nut* the natural weight of the stick and hand not being sufficient to supply the necessary firmness the additional pressure does not come from the forefinger alone but from the finger joints combined in such a manner that the bow is pressed down firmly and sped at the same time. The case is similar at the *point*, where, of course, the *pressure* has to be proportionately greater to get the same firmness. Under no circumstances must any impetus or pressure proceed from the elbow, a common mistake. The *stroke* need not be very loud by any means, rough or uncouth; it should be *elastic* above everything, and *even* as to *tone quality*, *through* the whole *length*.

The study of the *grand martelé* cannot be too strongly *recommended*, together with that of the *grand detaché*, which it resembles in several respects.

More than any other bowing style, it is apt to give breadth and freedom in the use of the whole bow and a certain *grandeur* to the style. The forefinger, thumb, hand wrist and arm are all powerfully exercised. Students should be particularly *careful* to observe a *pause* of a *duration commensurate* with the *strong exertion* of the *muscles* involved in the stroke. An inadequate rest

between them is sure to result in a feeble or bad start and a worse stroke.

The sustained stroke with martelé start

The *sustained stroke* with *martelé start* is very often employed for both single and double notes and may be of varying length. It stands about halfway between the accented detaché (see above), and the *martelé*, differing from the former by the nature of its start (*not jerky*, but *firm*), from the latter by that of the *stroke* itself, being sustained, and the *pause*, which, however, fractional, follows each stroke and gives it an unmistakable touch of decision and finality.

This character of the strokes makes the bowing style, especially when used for the whole bow length, eminently fitted for the presentation of a theme of dispassionate, dignified grandeur.

The staccato porté

The *staccato porté*, indicated by dashes over the strokelets to be played in one bow, is a *modification* of the *firm staccato*. The strokelets appear deprived of their staccato-like crispness

Ex. 52.

and shortness, but are, nevertheless, separated from one another by short gaps or pauses. Hand and forearm are instrumental in producing the *staccato porté* by gentle pushes, short or long, according to the amount of bow intended for each note in a passage for one bow.

Of the same class are the syncopated slurs as in Ex. 53. A *hiatus separates* the *slurs* under one bow which thus do

not differ markedly from and are *produced* like the little strokelets of the *staccato porté*. To bring about this effect, *each second* note of the *slur* is *shortened* by a *fraction* of *its value*. At the *lower half* of the bow, a similar effect, but one of still greater delicacy, may be obtained by *lifting* the *bow*

Syncopated slurs.

Ex. 53.

a very little off the string *after each slur*. In this form the style resembles and is allied to the *parlando*, which in connection with a slow or fast vibrato enables the artist to "speak," as the name "parlando" implies, on his instrument in faltering accents of emotion for which the pure cantabile does not offer the best modicum of expression.

Parlando

Example No. 54 brings us to a bowing style of rare occurrence which may be said to hold about the middle between the *staccato porté* and the slur, expressive of a sort of tone heaving

Of rarer occurrence

Ex. 54.

or *articulate breathing*. It represents a *slur* in which *each note* is *emphasized* more or less, and is produced by an *undulating* movement of the *hand*, that is, by a succession of pronations and supinations with the *pressure* of the *forefinger immediately relieved*. When this repeated pres-

sure of the forefinger on the bow is very light, more in the nature of a mild crescendo and decrescendo, the effect, if rightly produced, should express a quiet audible breathing. If it is more strenuous and resembling a succession of *sforzatos* it can be made to express articulate breathing under great emotional stress, sobbing.

In either case the difficulty of this bowing style lies in *sustaining* the *vibrations* of the *string* and through them the *continuity of tone.* The student will do well to begin with few notes, two or three, and to gradually increase the number to eight and twelve, played in one bow. While the bow is drawn comparatively fast in the direction of the string, the hand is able to perform its undulating motion with less risk of overpowering the string, than if the stroke movement is slow.

CHAPTER XII

The playing of chords — double strings — non-sustained chords — rules for sounding them — short chords over four strings — short chords with the upstroke — sustained chords — some modifications.

The playing of chords is not only indispensable to the violinist and forms an important part of his technical equipment, but it presents certain special features in the manipulation of the bow which render a more detailed consideration of their nature desirable.

The playing of double strings

Chords are the natural expansion of two part harmony, and I may mention at the outset that playing on two strings in various dynamic shades should be introduced into the earliest stages of a pupil's development so that it may soon become second nature with him as much as playing on single strings.[1] The benefits may easily be seen. In the first place, it establishes an unconscious, fine feeling for delineating string levels which greatly facilitates all later work over several strings; secondly, it has a direct and most beneficial influence on tone production, inasmuch as it accustoms the pupil early to seek and observe the best vibratory conditions of the strings, for to secure the same amplitude of vibrations on the part of two strings, especially in the higher registers, naturally requires a much

[1] This has been made a feature of Sevcik's "Method for Beginners," Op. 6.

greater freedom and perfection of stroke than is necessary for one string. Furthermore, the early study of double strings is of inestimable value for the intonation; it invites a consideration of the relative position of the fingers on adjoining strings, induces (providing it is at once insisted upon) the habit of keeping the fingers on the strings for thirds, sixths, etc., and develops strength of percussion.

Lastly, it is the best preparation, among other things, for the playing of chords either short or sustained. Indeed, the *student should approach* the *study* of *chords* both for the right arm and left hand *from* the *standpoint* that *two notes* on adjoining strings *constitute* a chord which he may sound sustained or struck short.

Essentially the technic of playing in either way chords over two, three or four strings is the same; the difference lies only in the fact that with the *addition* of a *third* and *fourth string* owing to the roundness of the bridge (which renders a simultaneous soft attack, much less the holding out of three strings, impossible) a corresponding *circular motion* of the *bow enters* into operation.

Non-sustained chords

Taking first *short* (non-sustained) *chords over three strings* with the *down* bow, the technic of sounding them satisfactorily, would, in obedience to general principles for playing double notes under the same conditions, be broadly speaking, governed by the *following rules:*

General rules

I. Employ not more bow length than is necessary for sounding broadly and clearly two strings together plus a fraction sufficient for the bow to reach also the third adjoining string level without a diminution of force.

Waste of bow length is one of the most common *faults* in playing chords.

II. Use, if the chord is to be loud, as is generally the case, the *part* of the *bow* where the *natural weight* of the stick offers most (physical) assistance to the bowing apparatus, that is, quite *near* the *nut.*

Every inch nearer the middle diminishes this weight assistance and with it the breadth of the chord.

III. Bring the bow down on to the two lower strings *not perpendicularly* unless the chord is to be played especially sforzato (see below), but at a *slant* or angle of about 45 degrees which best *permits a slight circular continuation* of the *stroke movement* in the *direction* of the *added third* string and avoids hardness of tone.

IV. *Do not hit* with the bow (see exception below), but *sweep* the strings with it, performing a stroke movement even if the amount of bow employed is to be restricted. To this end hold the wrist *well poised* and the *elbow comfortably high* and use *not* the *whole breadth* but the *edge* of the bow hair, only somewhat broader than ordinary (as, for instance, in the changing of bow). This will produce the most favorable vibratory response from the strings, *i.e.*, a noble and carrying tone which, on the whole, is not the case, with the wrist held low using the full breadth of the hair.

V. Chiefly employ the *hand as* a *whole* with the pronatory *force* thrown on the *forefinger;* the *hand* thus *leads* the *stroke movement* not the arm, but the *arm follows* it; its *coöperation* is of great *importance.* A chord struck from the wrist and hand alone sounds thin and feeble compared to one produced from the hand and forearm together, especially a chord of four strings.

VI. Take advantage of the *weight* of the *hand*, but of the hand *energized*, not lethargic. The *fingers* must *grip* the *bow firmly*, *all* the *muscles* are on the *qui vive*.

Except for special reasons, and therefore, with intent, a *chord* to be impressive, *full* and *broad* should *not* be *too short*. The stroke movement or sweep over the three strings is therefore best, somewhat deliberate rather than precipitated.

Short chords over four strings

This is particularly the case with chords over *four strings*. Here *more bow length* is employed, the *circular motion* of the stick being of necessity more *extended*, but even here one-third of the bow or a little more is on the whole *sufficient* for a *broad*, full chord.

Avoid striking the chord as though it were divided into two halves as in Ex. 55. Correctly played the effect

Ex. 55.

Ex. 56.

Ex. 57.

should approximately be as presented in Ex. 56 or expressed in words; the higher of the two lowest strings as soon as sounded, parts company with its companion string and associates itself with the next string higher, is left by it, and the latter, in its turn, associates itself and stays with the highest one. All this, of course, without breaking the continuity of the circular stroke movement.

Short chords with the upstroke

Short chords over three and four strings with the upstroke are best practiced at first in a form as the preceding one: Ex. 57.

The hand, chiefly the ring finger side, executes here a kind of circular digging movement with strong pressure from the forefinger. The arm is only discreetly employed, less in chords for three, more in those for four strings. Otherwise the *rules* are about the *same* as for sounding *chords* in the *down stroke.*

They are also the same, except for some slight obvious modifications, if the chords are struck at other parts of the bow. The *nearer* we go to the *point* the more strenuous naturally the supinatory (digging) movement of the hand becomes under a correspondingly *stronger counter-pressure* of the forefinger and *thumb* if we wish to attain anything like the same breadth and strength for the chord as nearer the nut.

Sustained chords

And this brings us to the sustained chords. As it is physically impossible to hold out three strings not to mention four, the lower one or, in the latter case, the two lower strings must assume more or less the character of broad grace notes.

Their effect would be about as in Ex. 58. The difficulty consists in creating as close an *association* of the *grace note portion* to the *held-out one* and effect this with as *little bow expenditure* as possible without impairing the breadth of the chord. Otherwise there would not be sufficient bow for sustaining the held-out portion of the chord. At the nut in the down stroke this is easier, providing not more than one-fourth of the bow approximately is given to the grace note portion (in chords over four strings one-third).

At the *point* for the *upstroke* chord the *hand* should be *held high* and the *wrist low* (somewhat pressed in), preventing the elbow joint to protrude unduly. The *hand*

executes the *digging* (or screw) movement described above, the *forefinger* acting like a *strong brake.*

The *arm slowly follows* the *hand* movement till it reaches its proper *level* for *drawing* the bow on the *two held-out strings.*

For practicing held-out chords which are very strengthening for the wrist and hand (forefinger and thumb), the student should begin with half notes, moderato and gradually increase the value of the held-out notes until he is able to sustain them forte a whole $\frac{4}{4}$ bar, adagio as in Ex. 58.

Ex. 58.

To sound *chords piano* scarcely requires special comment. Sometimes the hand, sometimes the forearm will prove the best agent for connecting the grace note portion with the held-out one of the chord.

Some modifications

There remain yet two or more further forms in which *short chords* may occur. As already mentioned, if they are to be given with a special sforzato, the bow, instead of sweeping the three or four strings may be *pressed, martelé fashion, firmly* on the lower ones and drawn across. Or sometimes, also, to attain a short *dry effect* for a chord of *three strings* the *middle* one is *pressed* down to the *level* of the *two others* and the three struck practically together. But even here a very slight arpeggio movement of the hand will be advisable to prevent roughness.

For a *quick succession of all down bow chords* the proceeding is similar. The *circular* stroke movement is like-

wise almost *obliterated.* The bow *hits* the strings as in the picchietato at the *extreme nut* with the *full breadth* of the hair, the wrist being held relatively low. The hand is principally engaged in thus hitting the three strings together.

On the other hand, in a passage as in Vieuxtemps' "Ballade and Polonaise" (see also supplement), and in the fourth Concerto of this master, the rapid chords with alternating down and upbow are also produced by the hand, with the forearm assisting if the wrist is not quite loose enough, but the *elbow* is here *held high* to give the *hand* as *much poise* and *ease* as possible and the *bow* is *drawn so vigorously* (with a certain downward pressure of the hand) in the *level* of the *middle string* that the two *adjoining ones* are touched and thus *forced,* as it were, into the *stroke-rush.*

In the Vieuxtemps Concerto as in some of the Paganini compositions the execution of the slurred chords is effected similarly, only more bow length and a freer use of the arm enter into the proceeding.

CHAPTER XIII

The problem of a beautiful tone — psychic aspect — the technical side — tone production — tone shading — accentuation — the vibrato.

What constitutes a beautiful tone on the violin? Tone to be understood as implying specifically the cantabile or singing tone as distinguished from tone in general which ensues from any contact whatsoever, of the bow with the strings?

In my "Art of Violin Bowing," I wrote on this question: "Let us take a naturally fine and perfectly trained soprano voice for a model. A tone in the violin to resemble it and be called beautiful must be as follows:

"(1) Free from mechanical imperfection and impurities; that is, it must not be scratchy or squeaky or otherwise suggestive of wood, gut and horsehair, or suggestive of effort in any form, but should be ideal, flowing from the strings pure and easy like the voice from the lips.

"(2) Of fair volume, not necessarily very large (in the *f*), as that is much a matter of constitution, but decidedly not thin — because a thin tone is unsatisfactory; not too heavy — this is apt to grate on the nerves. It should be rich, full and mellow in the forte and still round in the dolce; revealing, in either direction, the possibilities of the instrument and yet not exhausting them, a happy combination of strength and sweetness.

"(3) It must admit of every modulation, shade and color, which lend variety and charm to a musical utter-

ance; capable of expressing not only the softest shade and the loudest, but also all interlying, dynamic gradations, all nuances, crescendos and decrescendos, in every variety with equal, convincing truth and directness.

"(4) It must be sympathetic, warm, full of feeling, animated by a spark from the *feu sacre* that burns in the heart of every true musician, and without which a tone, however technically and æsthetically perfect, cannot hope to reach and touch the heart of the listener."

If this definition of a beautiful tone is a fairly accurate and comprehensive one, how can such a tone be acquired?

Again I quote from a more recent work of mine, "The Elements of Violin Playing and a Key to Sevcik's Works." Perhaps "more than can be said of anything else in the art of bowing the acquisition of such a tone depends on natural talent and its specific quality on the individuality of the student. This may account for the fact that the tone of no two players will be found to be the same, although they may have been taught by the same master, after the same method, have gone through the same exercises and be equally gifted and industrious. That individuality, which makes itself felt in a pupil already in his very grip of the bow and his first tentative strokes and all through his work of bowing, should be such a patent factor in the formation and quality of the cantabile tone is not surprising when we consider that it is dual, that is, physical as well as mental; physical inasmuch as it has to do with the formation of the hand, whether soft or hard, fleshy or bony, large or small, broad or slender; and the wrist, whether supple or otherwise, strong or weak; the forearm, muscular or flabby, etc.

"And mental in revealing either a nervous, high strung or phlegmatic temperament, a greater or lesser sensitiveness to æsthetic suggestions, a keen or dull perception and critical faculty of observation, imitation and absorption, etc."

The psychic aspect

With respect to this psychical aspect of the question of tone, the significance of which is apt to be overlooked in considering the more apparently urgent technical problems involved, if one may speak of an innermost of the artist's tone, its soul — as it were — it will be found in the artist's psychical ego, influencing consciously or unconsciously, the physical phenomenon of tone both as to its production and character with something like the inevitableness and continuity with which the mind acts on the body. That it seeks and employs, besides the technic of the bow, other means of expression, such as belongs to the technic of the left hand, the vibrato, portamento, shifting and choice of fingering, etc., is, of course, self-evident and mentioned here only *en passant.*

I say expression, but I do not wish this to be understood as meaning merely what the word commonly stands for in music. Playing with expression or feeling is only one of many manifestations of the psychical element in tone.

A man may play with deep feeling and a perfect command of all the devices of left-hand technic, and yet lack pretty much everything else we are wont to connect with an ideal tone. Refinement, delicacy, charm and variety of shading and phrasing, virility, character and countless dynamic and stylistic subtleties, even an audible change of bow, do they not all spring from the same source as

musical feeling and form the psychical constituents of a player's tone?

The presence or absence of any or several of these qualities, whether the result of technical training or not, or, to some extent, from physical reasons or not, represents in the first instance an attitude of the mind, either affirmative or negative, towards these qualities, an ability or inability to estimate them at their proper value and the inclination and determination or not, to embody them in tone.

The technical side

Turning to the *technical side* of the *beautiful tone question*, it will scarcely be necessary to reiterate what has been stated on more than one occasion in the preceding pages, namely that *perfection* of *tone* depends on the *perfection* with which the *strings* are *made to vibrate, i.e., regularity* and *continuity* of *vibrations*. This perfection may be in the nature of only a light touch of the bow as in the spiccato, a kiss awakening the string, as it were, from its slumber, its state of inertia, or it may lie in a sustained effort as in the cantabile.

Everything technically which *develops freedom, ease, delicacy* and *strength* of the *bow arm* works towards *beautifying* the *tone*.

For this reason it will easily be seen why and how the practice of bowing styles diametrically opposed to the cantabile may have a potent, beneficent influence on the tone, and why exclusive study of sustained bowings for the sake of tone must prove inefficient. Only an *all round muscular development* of the *right arm* will ultimately *lead* to the desired goal of a *technically beautiful* tone provided the student's efforts are guided by analytical self-criticism and observation.

Tone production

As to *tone production* the student is already acquainted with the physical laws and the physiological process of tone production. He is here referred to Chapters IV and V. He should bear in mind that the *vital force* is the *drawing* of the bow; *pressure*, great or little, is *only* a *qualifying* one. *Drawing produces vibrations* and through them tone; *speed* of the bow movement *increases, amplifies, intensifies* them; *pressure by itself retards, dulls* them, *stops* them. *Pressure*, must, therefore, be *always allied* to *more or less speed of bow movement* to counteract this, by itself deadening, influence of pressure on the vibrations and through them on the tone. In other words, the drawing must not be interrupted one instant while pressure is borne on the stick, or the tone either ceases or becomes unbearably scratchy.

This *principle* is *valid* in the execution of whatever bowing style may be concerned, more emphatically, of course, in any of a sustained nature. It will also guide students safely in the study of *dynamic shades*, of *crescendos* and *decrescendos*, that is, of increasing and decreasing the bow pressure.

Tone shading

As the *tone-devitalizing* effect of *great pressure* on the bow can only be *neutralized* by a *proportionate increase of speed* of the bow movement, it is obvious that when a crescendo is to be made, that is, pressure is to be increased, the amount of bow permitting such a simultaneous increase of speed must be increasing too, in other words, in plain violinistic language: Save bow, use little of it while the *tone is soft*, so that *much bow* may be left for the intended *increase* of *speed* and *pressure*. *Vice versa* in decrescendo give to

the *loudest tone* the *most bow*, decrease the amount of bow and bow speed as the tone becomes softer.

Accentuation

The validity of this principle applies also to *accentuation*. Accents are of two kinds. They are inherent in the rhythm, denoting the pulse of a musical utterance, or intensifying its beat, or they are superinduced, for reasons of dynamic variety or technical expediency. In the last-named respect accents form an important accessory to bowing technique. Some bowing styles, indeed, would be practically impossible but for their aid judiciously convoked.

There are many ways of producing an accent, from dropping the bow a little more heavily on to the string (from a greater height or nearer the nut), to a vigorous sudden push of the whole arm when the preceding dynamic milieu had perhaps called for short smooth strokes. The *forefinger* is the *most generally employed medium* to *effect* an *accent*, both transient and more or less sustained. In the former case the faintest pressure, responded to by the thumb, often suffices to secure the desired result, either technically or musically. It is of the kind employed for setting the bow free from its contact with the string in the springing bow arpeggio, for helping it over the strings in many forms of slurs and detached bowings and for emphasizing rhythm in every form. *If* more *sustained*, *such pressure* is, or ought to be, invariably *accompanied* by an *increased amount* of *bow length*. An accent thus produced is less liable to be hard, will sound and carry better. But in this case, of course, the forefinger and thumb share the work with the wrist and the arm, repectively. The proper rendition of accents in slurs, in combinations of slurs and detaché strokes requires forethought as to the

best division of the bow length intended for a passage. On account of an accent, strong or light, that is, a sudden precipitating of the bow movement under simultaneous more or less pressure, the expenditure of bow for the preceding or following slur will have to be saved accordingly.

The Vibrato

Although not strictly belonging to my subject of the subtleties of bowing, there is one thing I desire to touch upon because it is intimately connected with it — the vibrato.

Much has lately been written about the use and abuse of the vibrato on the violin, its influence on the tone, etc.

As with all means of expression *judicially* employed, the *vibrato* is the *great friend* of *tone* and one of its most *powerful allies*, used indiscriminately and always, it is the bane of sensitive ears and nerves and the *enemy*, the despoiler of the *true violin tone per se* as well as of sound left-hand technic and through it to the tone indirectly.

I leave to imagination what some of the old classical, Italian masters would say if they could hear the "vibrating" that is going on in almost every stroke, every tone, of some of our modern concert violinists. If vibrato is the only means of expressing intensified emotion, the latter must be continually in the throes of harrowing emotion, or emotion must be a cheap and common commodity, for the listener is drenched with it until he is tempted to wonder what a violin tone sounds like without being so adorned, beautified and intensified by a vibrato.

Is the abuse of the vibrato a sign of the times, in which the quietly dignified, the reticent-beautiful has no

place? Perhaps it is, but I would address a warning to the student.

There are *two great drawbacks* to the *use* (I do not mean abuse) of the *vibrato*, in *connection* with *bowing studies*.

Two drawbacks to its use

Firstly, it impairs the intonation especially if indulged in, in the earlier stages of violin study, and *secondly*, while in its proper place it intensifies, vivifies, humanizes the tone, it also is apt to act anything but favorably on the technic of tone production and bowing technic in general.

With regard to the hurtful effect of the vibrato on intonation I often wonder whether this is as fully realized by teachers as it deserves to be. Why do so many pupils play out of tune when there is no reason to suppose that their hearing is defective or that they err on the side of slow practice and industry. Even accredited players are open to criticism on that score. In my mind there is no doubt that the *free indulgence* at an *early stage* in the *use* of *vibrato* on all occasions lies at the *bottom* of this *deficiency*.

In the first place a dependable left-hand technic and intonation is based on the principle of keeping the fingers down wherever and as long as possible. This principle being unfavorable to the exercise of the vibrato habit, it is discarded for the sake of the latter the more readily as it is uncomfortable, requires care and thought and can only be fully established through long practice. The fact that the first and second fingers are the ones best suited for and most easily made to shake aggravates the evil; for the first finger is the one which ought to be left on the strings more than any other; from it are gauged the distances, and it furnishes, as it were, the pillar of safety in all positions for scales, chord playing, etc.

And the habit of raising this finger for the sake of making it produce the vibrato becomes soon the habit of keeping it raised most of the time with disastrous effect on scales, intonation and security of fingering. But more than that, as absolute pitch is irreconcilable with the very nature of the vibrato, being the product of slight alternations in the number of vibrations for any given tone, it cannot be relied upon for the production of perfect overtones in which the quality (timbre) and carrying power of every tone on the violin largely depends.

Lastly, the *use* of the *vibrato invites* loud, *noisy* playing. He, who is once seized with the vibrato mania is not happy unless he can play *forte*, with plenty of feeling. But *loud playing deceives* the *ear*, *takes* the *fine edge* off the *auditory nerves*, making them less sensitive for detecting faults of intonation.

This is also one of the reasons that the use of the vibrato for bowing studies is to be deprecated, except, perhaps, for the practice of slow sustained strokes with crescendos, etc. As previously stated, *mezzo piano* should be made the staple tone quality for average bowing work and *from* this *unimpassioned tone milieu* the student should learn to *produce fundamental beauty of tone* in *every bowing style* and *every dynamic variety*, without the extra *aid of vibrato* and shifting. Moreover, as this elementary perfection and beauty of tone depends in no small degree on perfect intonation and firm finger pressure, there is additional reason for avoiding the deceptive lures of the vibrato.

Even when the student has become an artist and knows how and when to employ it to the artistic enhancement of his performance he will do well to use it *sparingly*. *Passage work* for bow and fingers should *never* be *invaded* by

any suspicion of a vibrato, and many times a mezza voce cantilena will gain poetical charm and chaste beauty by its absence.

In the last instance it is, of course, temperament which with the artist must decide his use of the vibrato whether it be slow, medium or fast, and we shall leave it at that.

CHAPTER XIV

Concluding remarks on the study of the bowing styles in the musical supplement "Right Arm Gymnastics" (published separately) and on bowing practice in general.

The aim of the student must be to achieve through his bow arm not only beauty of sound but beauty of movement. To this end the continuous use of a large mirror is a truly wonderful aid, and in addition it will be found to enhance considerably the pleasurable interest, indeed, the fascination of bowing studies, an interest far exceeding that offered by the work of the left hand. But any effectual use of a mirror implies the necessity on the part of the student to practice bowing without notes, so that he may devote his undivided attention to the doings of the right arm and every part of it. Scales, therefore, in single notes, thirds, sixths and octaves, broken chords as well as études if they are to serve truly beneficially as study material for bowing, should be committed to memory.

Bowing studies, moreover, to yield their full benefit, must be done not occasionally only, but with regularity.

In any scheme of daily bowing drill the student should begin regularly with the *sustained stroke* in *ff*, two bars to a bow, Andante (Adagio), and in *pp*, eight bars to a bow in single or double notes.

The slow sustained stroke in *ff* and *pp*

A long experience has proved the *efficacy*, without exception, of just *this work* for the *violinist* of *every grade*. Together with the practice of martelé at all parts of the bow it is, perhaps,

the *best "direct" means* towards *perfecting* the tone both as to volume and quality. As an evenly sustained slow stroke in *ff* requires, in addition to muscular strength of the whole arm (especially of the wrist, forefinger and thumb), the most careful adjustment of pressure, varying at all parts of the bow and with every tone to the slowest possible bow speed (see Chapter XIII), the pupil should begin with *mf* or *f* and in course of time increase this moderate loudness to a *ff*. This means long and patient work.

Similarly, progressive work and patience is necessary for the mastery of the *pp* before the goal in point of slowness, softness and evenness of tone can be reached or as *tradition* has it, a tone can be *held* out *i one stroke a whole minute.* The *bow* is *gripped very lightly,* the two middle fingers barely touching the stick, and with the *arm steady* and *firm* it is thus drawn at the *extreme edge* of the *hair.*

On the same progressing lines studies in increasing and decreasing the tone may be conducted. Their great usefulness needs no comment. A more detailed account of everything relating to tone production will be found in my two books, "Art of Violin Bowing" and "The Elements of Violin Playing and a Key to Sevcik's Works."

As to the study of the various bowings, *determine beforehand* all *particulars* relating to the proper execution of a *bowing style* about to be practiced, the *part* of the bow and the *exact amount* of it to be employed to the extent, if necessary, of making chalk marks on the stick, and *read* up the *references* to it in the preceding pages.

Progressive grades of speed

Adopt *progressive grades of speed,* not only with regard to more difficult or complicated bowings where speed is necessarily of slow attainment, but generally. *Commence* the study of a

new bowing style in a tempo *slow* enough to permit a careful *critical analysis* of the *movements* of the *arm* or any part of it concerned. Bring these movements under the *control* of the *will*. It is this *slow analytical work* which must serve as the sure *foundation* for the future *automatic* action of the arm at *great speed*. Any mistake caused by premature hurry and subsequent *confusion* of the *muscular activity* will with every repetition *become* more *confirmed* and more *difficult* of *elimination*.

Muscles are like young children, one cannot expect much from them at one time, but gentle persuasion will accomplish wonders. In the beginning it is not strength and long continuity that is to be developed, but the gentle exercise of the muscles necessary for a particular work, with the exclusion as far as possible, of any antagonistic muscular activity as we have seen. Once the separation of nerve impulses and the actuation of the right muscles has been thoroughly established, these muscles attain also strength and elasticity. And with regard to the acquisition of these qualities it should be noted that the *less muscular energy* (strength) is *expended at one time* the *more easily* it is *replenished*, and by replenishing a *surplus* is *created*, in excess to the need, the muscle becomes stronger, more enduring.

Speed of endurance

Do not, therefore, increase the speed too soon; weeks, months, may in many cases be necessary to bring a certain muscle or set of muscles to the state where it is able to sustain the strain imposed on it by a faster tempo. The *momentary* actual *physical effort* required of a muscle is *usually* much *less* than is imagined, and *put* into *force* by the student; *i.e.*, muscular strength does not imply a cast iron quality but

rather one of steel, and the *last test* of *strength* is *speed* and *endurance*. Neither can be attained by forcing a muscle but only by persistent, gentle progressive training. The more difficult, that is, *complex* or subtle *bowing styles* are the *longer* the time they *require* for their mastery because their apparent ease of their execution, the lightness they require is the last fruit of acquired strength.

At the price of breadth and freedom

While it is most essential to practice bowing styles wherever practicable at the three principle parts of the bow, middle, point and nut in order to attain as nearly as possible the same degree of facility at each, and, may be, also for special technical reasons, it is equally *essential* that this way of *piece-practice* is *not carried too far*, or indulged in at the *price of breadth and freedom and tone quality* which largely *depend* on the movement of the *arm as a whole*. Already *Baillot* warns pupils against too minutely specializing. The result is not unlike that experienced by a singer who might practice *ad nauseum* each of the three registers of his voice but fail to connect them. There is a notable break between them. The study with portions of the bow should, therefore, *frequently alternate* with, or as it were, be reinforced by, *work* for the *whole bow*. The practice of one reacts favorably on the other.

Dynamic variety

Supplementary to this last point, the student should also give *dynamic variety* to his *bowing styles*. It is a mistake to practice loud throughout, as it is a like mistake to play only *pp* after the muscles have reached a certain degree of responsive strength and independence. Just because the muscular apparatus at work in bowing is so complex and so subtle, it is necessary to blend dynamic effects to get *every*

part of the *muscular machinery to work* and in time under *automatic control.* Playing *p* leaves inert or partially inert, certain muscles; and playing *f* if indulged in long, is sure to develop one set at the expense of another of a more subtle activity.

Within the bounds of disciplined reason the student should vary the tone shades as he varies the parts of the bow and also try soft shades where loudness is more natural, and *vice versa,* loudness, where softness seems imperative.

A test for mastery

As a fine test for mastery over these dynamic variations, I recommend beginning any suitable style of bowing at the nut, and without interruption or change of dynamics, to transfer it to the middle and point and back in the same way to the nut. Or also alternate between point and middle and the parts between nut and middle, or alternate between the use of one-half bow and that of one-fourth or one-eighth at either point or middle with crescendos at will, without, as I said, interrupting the flow of tone for one instant or changing the once adopted tempo.

Bowing exercises should not be carried to excess, neither with respect to practicing any particular style with the view to mastering it, nor in general, at the expense of other items of technic, musical education and self-expression. Again I repeat the muscular apparatus is so complex, the activity of its parts so co- and inter-related, that concentrating efforts on the mastery of one difficult style of bowing rarely avails much, while through an indirect, roundabout way, by the patient practice of other, very different styles the one in question often becomes easy at an unexpected moment. On the other hand, a one-sided,

too prolonged practice puts also the nervous system, which lies back of the muscular effort, to an injurious strain. This is the case in certain bowing styles more than in others (the staccato and *staccato volant*, etc.), but true on the whole. The student is advised in any case to alternate bowing practice with that of scales, chromatic and diatonic, broken chords, trills, etc.

In conclusion, I wish to mention the *value of artificial harmonics* in the *scheme of bowing*. The here necessary, rapid vibrations *require* for their successful continuity a corresponding *light* and *rapid* bow movement, the *absence* of all *pressure* as a hindrance to vibration which makes their study most beneficial; for the advanced student, moreover, they call for and develop a steel-like attitude of the forearm and wrist combined. The fine execution of harmonics in staccato, spiccato at the bow middle and in held-out notes, is almost a sure guarantee for a well-trained, well-balanced right arm, combining lightness of touch with a certain unmistakable sureness and firmness of attack, delicacy with strength.

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